

IDC DOCUMENTATION

# Database Schema



## Part 2

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## **Ordering Information**

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## Change Page

This document is Revision 3 of the Database Schema. The following changes have been made for this publication:

Page	Change
All	The revision number of the document was changed to 3.
ii	Descriptions of the changes included in this version of the document were updated.
iv	New references were added to the Related Information section.
8	The Fundamental S/H/I table relationships figure was changed. The relationship between <b>stamag</b> and <b>netmag</b> was changed from many-to-one to many-to-zero or many-to-one. The relationship between <b>wftag</b> and <b>wfdisc</b> was changed; the "zero" on the <b>wfdisc</b> side of the relationship was removed.
14	The Waveform table relationships figure was changed. All relationships between <b>wftag</b> and another table were changed to many-to-one or zero-to-one.
16	The Network table relationships figure was changed. The relationship between <b>site</b> and <b>site_address</b> was changed from one-to-one to many-to-one.
19	The Event Screening table relationships figure was changed to reflect new table contents. The figure was also moved from the Fundamental category to the Automatic Processing category.
20	The Analyst Review table relationships figure was changed to include the <b>revaudit</b> table.
22	The Timeseries Spectrums table relationships figure was changed. The relationship between <b>wftag</b> and <b>wfdisc</b> was changed from many-to-one to many-to-one or zero-to-one.
26	The Subscription Subsystem table relationships figure was changed to reflect new table contents.
27	The <b>std_chanmap</b> and <b>exception_chanmap</b> tables were added to the Message and Subscription Subsystems Support Tables figure.
27, 60, 322	The <i>msgtype</i> attribute was added to the <b>datauser</b> table.
73	The <i>cp8</i> , <i>snr7</i> , and <i>noi7</i> attribute definitions in the <b>evsc_hydro</b> table were replaced by <i>cp_broad_band</i> , <i>snr_high_band</i> , and <i>noise_high_band</i> .
73, 195	The <i>arid</i> attribute was removed from the <b>evsc_hydro</b> table.
73, 353	The <i>prodid</i> attribute was removed from the <b>evsc_hydro</b> table.

Page	Change
73, 384	The <i>sta_clear_path</i> attribute was removed from the <b>evsc_hydro</b> table.
73, 384	The <i>sta_score</i> attribute was removed from the <b>evsc_hydro</b> table.
74	The <i>moveout</i> , <i>ndp_snr</i> , <i>magtype_mb</i> , <i>magtype_ms</i> , <i>tect_num</i> , <i>net_pnsmax5</i> , and <i>net_pnsmax7</i> attributes were removed from the <b>evsc_prod</b> table and the <i>moveout_pp</i> , <i>moveout_sp</i> , <i>min_dt_pp</i> , <i>min_dt_sp</i> , <i>ndp_snr_pp</i> , <i>ndp_snr_sp</i> attributes were added to the <b>evsc_prod</b> table. Several of the definitions were also updated.
76	The description for the <b>evscRegional</b> table was updated. The <i>chan</i> , <i>pnsmax</i> , <i>pnsmax_corr</i> , <i>pnsmax_err</i> , <i>pnsn</i> , <i>pnlg</i> , <i>pn_snr</i> , <i>sn_snr</i> , <i>lg_snr</i> , <i>pnsn_qual</i> , and <i>pnlg_qual</i> attributes were added to the table, and the <i>prodid</i> , <i>pnsmax5</i> , <i>pnsmax7</i> , <i>pnsn5</i> , <i>pnsn7</i> , <i>pnlg5</i> , <i>pnlg7</i> , <i>pn5_sn</i> , <i>pn7_sn</i> , <i>sn5_sn</i> , <i>sn7_sn</i> , <i>lg5_sn</i> , <i>lg7_sn</i> , <i>pnsn5_qual</i> , <i>pnsn7_qual</i> , <i>pnlg5_qual</i> , and <i>pnlg7_qual</i> were dropped from the table
80	The <b>exception_chanmap</b> table was added to the S/H/I Table Descriptions chapter.
83	The <b>fs_stageproduct</b> table was added to the schema. It is the same as the <b>fileproduct</b> table.
83, 240	The format of the <i>dsize</i> attribute in the <b>fileproduct</b> table was changed from number(8) to number(10).
83, 255	The format of the <i>foff</i> attribute in the <b>fileproduct</b> table was changed from number(8) to number(10).
87	The format of the <i>msgdformat</i> attribute in the <b>fpdescription</b> table was changed from varchar2(8) to varchar2(16).
121, 323	The format of the <i>msize</i> attribute in the <b>msgdisc</b> table was changed from number(8) to number (10).
122, 253	The format of the <i>filesize</i> attribute in the <b>msgdisc</b> table was changed from number(8) to number (10).
122, 307	The format of the <i>mfoff</i> attribute in the <b>msgdisc</b> table was changed from number(8) to number (10).
122, 252	The format of the <i>fileoff</i> attribute in the <b>msgdisc</b> table was changed from number(8) to number (10).
122, 255	The format of the <i>foff</i> attribute in the <b>msgdisc</b> table was changed from number(8) to number (10).

Page	Change
140	The description for the <b>productypeevsc</b> table was updated. The <i>min_ndp_pp</i> , <i>min_ndp_sp</i> , <i>min_moveout_pp</i> , <i>min_moveout_sp</i> , <i>min_dp_snr_pp</i> , <i>min_dp_snr_sp</i> , <i>magpref_mb</i> , and <i>magpref_ms</i> attributes were added to the table. The <i>min_ndp</i> , <i>min_moveout</i> , <i>min_dp_snr</i> , <i>reg_min_psnr</i> , and <i>reg_min_ssnr</i> were dropped from the table.
153	The <b>revaudit</b> table was added to the schema.
170	The <b>std_chanmap</b> table was added to the S/H/I database tables chapter.
197	The <b>revaudit</b> table was added to the <i>auth</i> attribute description.
208	The <b>evscRegional</b> table was added to the <i>chan</i> attribute description.
220	The <i>cp8</i> attribute description was replaced by <i>cp_broad_band</i> .
251	The <i>ext_chan</i> attribute was added to the S/H/I attributes.
268	The <i>hydro_grp_phase</i> attribute name was corrected to <i>hyd_grp_phase</i> .
275	The <i>int_chan</i> attribute was added to the S/H/I attributes.
283	The <b>exception_chanmap</b> , <b>revaudit</b> , and <b>std_chanmap</b> tables were added to the <i>ldate</i> attribute description.
284	The <i>lg_snr</i> attribute replaced the <i>lg5_sn</i> and <i>lg7_sn</i> attributes.
295	The <i>magpref_mb</i> and <i>magpref_ms</i> attributes were added to the S/H/I Column Descriptions chapter.
296	The <i>magtype_mb</i> and <i>magtype_ms</i> attributes were removed from the S/H/I Column Descriptions chapter.
308	The <i>min_dp_snr_pp</i> and <i>min_dp_snr_sp</i> attributes replaced the <i>min_dp_snr</i> attribute.
308	The <i>min_dt_pp</i> and <i>min_dt_sp</i> attributes were included in the S/H/I Column Descriptions chapter.
309	The <i>min_moveout_pp</i> and <i>min_moveout_sp</i> attributes replaced the <i>min_moveout</i> attribute.
310	The <i>min_ndp_pp</i> and <i>min_ndp_sp</i> attributes replaced the <i>min_ndp</i> attribute.
318	The <i>moveout_pp</i> and <i>moveout_sp</i> attributes replaced the <i>moveout</i> attribute.
329	The <i>ndp_snr_pp</i> and <i>ndp_snr_sp</i> attributes replaced the <i>ndp_snr</i> attribute.
330	The <i>net_pnsmax5</i> and <i>net_pnsmax7</i> attributes were removed from the S/H/I Column Descriptions chapter.

Page	Change
333	The <i>noi7</i> attribute description was replaced by <i>noise_high_band</i> .
337	The <b>exception_chanmap</b> and <b>std_chanmap</b> tables were added to the <i>offdate</i> attribute description.
338	The <b>exception_chanmap</b> and <b>std_chanmap</b> tables were added to the <i>ondate</i> attribute description.
346	The <i>pn_snr</i> attribute replaced the <i>pn5_sn</i> and <i>pn7_sn</i> attributes.
347	The <i>pnlg</i> attribute replaced the <i>pnlg5</i> and <i>pnlg7</i> attributes.
347	The <i>pnlg_qual</i> attribute replaced the <i>pnlg5_qual</i> and <i>pnlg7_qual</i> attributes.
347	The <i>pnsmax</i> attribute replaced the <i>pnsmax5</i> and <i>pnsmax7</i> attributes.
347	The <i>pnsmax_corr</i> and <i>pnsmax_err</i> attributes were added to the S/H/I Column Descriptions chapter.
348	The <i>pnsn</i> attribute replaced the <i>pnsn5</i> and <i>pnsn7</i> attributes.
348	The <i>pnsn_qual</i> attribute replaced the <i>pnsn5_qual</i> and <i>pnsn7_qual</i> attributes.
353	The <b>evscRegional</b> table was dropped from the <i>prodid</i> attribute description.
363	The <i>reg_min_psnr</i> and <i>reg_min_ssnn</i> attributes were dropped from the S/H/I Column Descriptions chapter.
365	The <i>revfunction</i> , <i>revid</i> , <i>revtagid1</i> , <i>revtagname1</i> , <i>revtagid2</i> , <i>revtagname2</i> , and <i>revstate</i> attributes were added to the S/H/I Column Descriptions chapter.
380	The <i>sn_snr</i> attribute replaced the <i>sn5_sn</i> and <i>sn7_sn</i> attributes.
380	The <i>snr7</i> attribute description was replaced by <i>snr_high_band</i> .
384	The <b>exception_chanmap</b> table was added to the <i>sta</i> attribute description.
396	The <i>tectnum</i> attribute was removed from the S/H/I Column Descriptions chapter.
416	The Database Table Groups table was altered to reflect the changes to the radionuclide schema since the last release of the document.
422	The <b>gards_flags</b> table was added to Table 126.
422	The <b>gards_bg_energy_cal</b> table was added to Table 127.
426	Several new synonyms were added to the RMSAUTO account (Table 129).
429	Triggers for the RMSAUTO account were consolidated and updated (Table 130).

Page	Change
435	The <b>gards_dbrole_owner</b> table was added to the RMSMAN unique data constraints (Table 132).
435	The <b>gards_flags</b> table was added to the RMSMAN primary key constraints (Table 133).
436	The <b>gards_bg_energy_cal</b> table was added to the RMSMAN foreign key constraints (Table 134).
438	Several sequences were added to the RMSMAN account (Table 136).
439	Several synonyms were added to the RMSMAN account (Table 137).
444	The <b>gards_soh_char_data</b> , <b>gards_soh_num_data</b> , and <b>gards_soh_sensor_data</b> tables replaced the <b>gards_soh_data</b> table in Figure 27.
449	The <b>gards_sample_cat</b> table replaced the <b>gards_nic</b> table in Figure 32.
452	The <b>gards_sample_xe_procs_params</b> table was updated in Figure 35.
453	The <b>gards_comments_defs</b> table was added to Figure 36 and new attributes were added.
457	The <b>gards_auto_sample_cat</b> table was added to the radionuclide schema.
465	The <b>gards_bg_energy_cal</b> table was added to the radionuclide schema.
466	The <b>gards_cat_template</b> table was added to the radionuclide schema.
469	The <b>gards_comments</b> table was altered; the <i>type</i> attribute was changed to <i>comment_type</i> .
471, 598	The <i>dlid</i> attribute was added to the <b>gards_data_log</b> table.
472	The <b>gards_dbrole_owner</b> table was added to the radionuclide schema.
490	The <b>gards_nic</b> and <b>gards_nic_init</b> tables were removed from the radionuclide schema.
508, 595	The <i>db_name</i> attribute was added to the <b>gards_permissions</b> table.
530, 595	The <i>db_name</i> attribute was added to the <b>gards_roles</b> table.
533	The <b>gards_sample_cat</b> table was added to the radionuclide schema.
546	Several attributes were added to the <b>gards_sample_xe_procs_params</b> table.
547	The <b>gards_soh_char_data</b> table was added to the radionuclide schema.
548	Several attributes were added to the <b>gards_soh_code</b> table.
548	The <b>gards_soh_data</b> table was removed from the radionuclide schema.

Page	Change
550	The <b>gards_soh_num_data</b> table was added to the radionuclide schema.
551	The <b>gards_soh_sensor_data</b> table was added to the radionuclide schema.
561, 639	The <i>sample_id</i> attribute was added to the <b>gards_user_comments</b> table.
563, 595	The <i>default_role</i> attribute was moved from the <b>gards_users</b> table to the <b>gards_users_roles</b> table.
567	Several attributes were added to the <b>gards_xe_proc_params_template</b> table.
570	The <i>abscissa</i> attribute was added to the radionuclide schema.
573	The <b>gards_auto_sample_cat</b> and <b>gards_sample_cat</b> tables were added to the <i>activity</i> attribute.
574	The <b>gards_cat_template</b> table was added to the <i>alpha</i> attribute.
582	The <b>gards_cat_template</b> table was added to the <i>begin_date</i> attribute.
583	The <i>beta_coeff1</i> , <i>beta_coeff2</i> , and <i>beta_coeff3</i> attributes were added to the radionuclide schema.
583	The <i>beta_ecr_order</i> attribute was added to the radionuclide schema.
586	The <b>gards_auto_sample_cat</b> and <b>gards_sample_cat</b> tables were added to the <i>category</i> attribute.
586	The <b>gards_cat_template</b> , <b>gards_sample_cat</b> , and <b>gards_auto_sample_cat</b> tables were added to the <i>central_value</i> attribute.
591	The <b>gards_cat_template</b> table was added to the <i>comment_text</i> attribute.
591	The <b>gards_comments</b> table was added to the <i>comment_type</i> attribute and the format was changed to number.
592	The <b>gards_sample_xe_proc_params</b> and <b>gards_xe_proc_params_template</b> tables were added to the <i>compton</i> attribute.
592	The <i>constant</i> attribute was removed from the radionuclide schema.
596	The <i>delta</i> attribute was added to the radionuclide schema.
597	The <i>det_back_used</i> attribute was added to the radionuclide schema.
598	The <b>gards_cat_template</b> , <b>gards_soh_char_data</b> , <b>gards_soh_num_data</b> , and <b>gards_soh_sensor_data</b> tables were added to the <i>detector_id</i> attribute.
598	The <i>display_detector</i> and <i>display_station</i> attributes were added to the radionuclide schema.

Page	Change
600	The <b>gards_soh_char_data</b> , <b>gards_soh_num_data</b> , and <b>gards_soh_sensor_data</b> tables replaced the <b>gards_soh_data</b> table in the <i>dtg_begin</i> attribute.
600	The <b>gards_soh_char_data</b> , <b>gards_soh_num_data</b> , and <b>gards_soh_sensor_data</b> tables replaced the <b>gards_soh_data</b> table in the <i>dtg_end</i> attribute.
603	The <b>gards_cat_template</b> table was added to the <i>end_date</i> attribute.
611	The <b>gards_cat_template</b> table was added to the <i>gamma</i> attribute.
611, 612	The <i>gamma_coeff1</i> , <i>gamma_coeff2</i> , and <i>gamma_coeff3</i> attributes were added to the radionuclide schema.
612	The <i>gamma_ecr_order</i> and <i>gas_back_used</i> attributes were added to the radionuclide schema.
614	The <b>gards_auto_sample_cat</b> and <b>gards_sample_cat</b> tables were added to the <i>hold</i> attribute.
615	The <i>init_begin_date</i> and <i>init_end_date</i> attributes were added to the radionuclide schema.
617	The <b>gards_sample_xe_proc_params</b> and <b>gards_xe_proc_params_template</b> tables were added to the <i>lc_abscissa</i> attribute.
618	The <i>lower_bound</i> attribute was added to the radionuclide schema.
621	The <i>method_id</i> and <i>method_type</i> attributes were added to the radionuclide schema.
624	The <b>gards_cat_template</b> , <b>gards_sample_cat</b> , and <b>gards_auto_sample_cat</b> tables were added to the <i>name</i> attribute.
627	The <i>num_samples</i> attribute was added to the radionuclide schema.
628	The <i>owner</i> attribute was added to the radionuclide schema.
628	The <b>gards_soh_char_data</b> and <b>gards_soh_num_data</b> tables replaced the <b>gards_soh_data</b> table in the <i>param_code</i> attribute.
629	The <i>param_display</i> and <i>param_display_flag</i> attributes were added to the radionuclide schema.
639	The <b>gards_auto_sample_cat</b> , <b>gards_sample_cat</b> , and <b>gards_bg_energy_cal</b> tables were added to the <i>sample_id</i> attribute.
640	The <i>sensor_name</i> and <i>sensor_type</i> attributes were added to the radionuclide schema.
643	The <b>gards_cat_template</b> , <b>gards_soh_char_data</b> , <b>gards_soh_num_data</b> , and <b>gards_soh_sensor_data</b> tables were added to the <i>station_id</i> attribute.

Page	Change
646	The <b>gards_cat_template</b> table was added to the <i>tstat</i> attribute.
646	The <i>type</i> attribute for <b>gards_comments</b> was deleted from the radionuclide schema.
647	The <i>unit</i> attribute was added to the radionuclide schema.
647	The <i>upper_bound</i> attribute was added to the radionuclide schema.
649	The <b>gards_soh_char_data</b> , <b>gards_soh_num_data</b> , and <b>gards_soh_sensor_data</b> tables replaced the <b>gards_soh_data</b> table in the <i>value</i> attribute.
651	The <b>gards_cat_template</b> table was added to the <i>xform</i> attribute.
R1	Several new references were added to the document.

# Database Schema

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## About this Document

This chapter describes the organization and content of the document and includes the following topics:

- Purpose
- Scope
- Audience
- Related Information
- Using this Document

# About this Document

## PURPOSE

This document describes the Prototype International Data Centre (PIDC) database schema. It is Revision 3 of *Database Schema*.

Since the Revision 2 publication, four new tables have been added and seven tables have been modified in the seismic, hydroacoustic, infrasonic (S/H/I) schema. Descriptions of all tables, columns, and entity relationships have been added, changed, or deleted to reflect the following changes:

- The **msgtype** attribute was added to the **datauser** table.
- Tables used by the Event Screening Subsystem (**evsc\_hydro**, **evsc\_prod**, **evsc\_regional**, and **producttypeevsc**) were altered to meet the needs of software updates.
- The **fs\_stageproduct** table was added to the schema to retain the results of running the *FSstage* process between runs. This table has the same structure as the **fileproduct** table.
- Storage formats for several of the **fileproduct** and **msgdisc** table attributes were changed.
- The **revaudit** table was added to the schema to keep a history of the revisions made to an event.
- The **std\_chanmap** and **exception\_chanmap** tables were added to the schema to map external channel names to channel names used within the PIDC.

Since the Revision 2 publication, eight new tables have been added, nine tables have been modified, and three tables have been deleted from the radionuclide schema. Descriptions of all tables, columns, and entity relationships have been added, changed, or deleted to reflect the following changes:

- Three new tables were added to the schema to support categorization: `gards_auto_sample_cat`, `gards_cat_template`, and `gards_sample_cat`.
- Three new tables (`gards_soh_char_data`, `gards_soh_num_data`, and `gards_soh_sensor_data`) replaced the `gards_soh_data` table and the `gards_soh_code` table was altered to support the processing of State of Health (SOH) data.
- The `gards_db_role_owner` table was added and the `gards_permissions`, `gards_roles`, `gards_users`, and `gards_users_roles` tables were altered. These tables manage roles and permissions.
- The `gards_comments`, `gards_data_log`, `gards_sample_xe_proc_params`, and `gards_user_comments` tables were altered.
- The `gards_bg_energy_cal` table was added to the schema.
- The `gards_nic` and `gards_nic_init` tables were removed from the schema.

## SCOPE

This document describes the schema used in the PIDC databases. The schema includes relationships between tables, table descriptions, and definitions of the table columns.

This document does not describe the specific location and general use of these tables at the PIDC or how to manipulate them to obtain information. Nor does it provide the formats for external file representations of the tables. These topics are described in sources cited in Related Information.

## AUDIENCE

This document is intended for software developers, engineers, scientists, processing operators, and anyone who needs to interact with the databases at the PIDC.

▼ About this Document

## RELATED INFORMATION

This document supersedes [And90a], [Swa91], [Swa93], [Car97], [IDC5.1.1], [IDC5.1.1Rev1], and [IDC5.1.1Rev2].

External formats of all columns used with S/H/I data are described in “S/H/I Column Descriptions” on page 185, and most can also be found in [Car97].

Tables used with specific application software are described in the software design documents (for example, [IDC7.1.1], [IDC7.1.3], [IDC7.1.4], [IDC7.1.5], [IDC7.1.6], [IDC7.1.10Rev1], [IDC7.1.11], [IDC7.1.12], [IDC7.3.1], [IDC7.4.1], [IDC7.4.2], [IDC7.4.3], [IDC7.4.4], and [IDC7.5.1]).

The following documents provide information and instructions for retrieving data from the PIDC databases:

- *Database Tutorial* [IDC5.1.2]
- *Configuration of PIDC Databases* [IDC5.1.3Rev0.1]

See “References” on page R1 for a listing of all the sources of information consulted in preparing this document.

## USING THIS DOCUMENT

This document is part of the overall documentation architecture for the International Data Centre (IDC). It is part of the User Guides document category, which provides information relevant to understanding IDC processing.

This document is organized as follows:

- Chapter 1: S/H/I Entity Relationships

This chapter describes the relationships between the S/H/I database tables.

- Chapter 2: S/H/I Table Descriptions

This chapter describes each table in the S/H/I database schema (in alphabetical order). It includes information about the category to which the table belongs, the columns included in the table, ORACLE storage types for each column, keys (primary, alternate, and foreign), and column categories (descriptive, measurement, or administrative).

- Chapter 3: S/H/I Column Descriptions

This chapter provides detailed descriptions of the columns of the S/H/I database schema including the tables in which the columns may be found, a full description of the column, storage and external formats, NA values, units, and ranges.

- Chapter 4: Radionuclide Database Overview

This chapter provides an overview of the radionuclide database tables through an organizational description of the tables.

- Chapter 5: Radionuclide Entity Relationships

This chapter describes the relationships between the radionuclide database tables.

- Chapter 6: Radionuclide Table Descriptions

This chapter describes each table in the radionuclide database schema (in alphabetical order). It includes information about the columns included in the table, ORACLE storage types for each column, and keys (primary, alternate, and foreign).

- Chapter 7: Radionuclide Column Descriptions

This chapter provides detailed descriptions of the columns of the radionuclide database schema including the tables in which the columns may be found, a full description of the column, storage and external formats, NA values, units, and ranges.

- References

This section lists the sources cited in this document.

**▼ About this Document****■ Glossary**

This section defines the terms, abbreviations, and acronyms used in this document.

**■ Index**

This section lists topics and features provided in this document along with page numbers for reference.

The print version of this document is separated into three parts for ease of printing. Each part contains one or more chapters of the document. Part 1 includes Chapters 1 and 2; Part 2 includes Chapter 3; and Part 3 includes Chapters 4 through 7. Each part has a complete Table of Contents, an "About this Document" section, a Reference, a Glossary, and an Index. Parts 1 and 3 also have a List of Figures and a List of Tables.

**Conventions**

This document uses a variety of conventions, which are described in the following tables. Table I shows the conventions for entity-relationship diagrams. Table II lists typographical conventions. Table III explains certain technical terms that are not part of the standard Glossary, which is located at the end of this document.

**TABLE I: ENTITY-RELATIONSHIP SYMBOLS**

Description	Symbol
One A maps to one B.	A ←————→ B
One A maps to zero or one B.	A ←————○→ B

TABLE I: ENTITY-RELATIONSHIP SYMBOLS (CONTINUED)

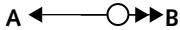
Description	Symbol						
One A maps to many Bs.	A 						
One A maps to zero or many Bs.	A 						
database table	<table border="1"> <tr><td>tablename</td></tr> <tr><td> primary key  foreign key</td></tr> <tr><td>attribute 1</td></tr> <tr><td>attribute 2</td></tr> <tr><td>...</td></tr> <tr><td>attribute n</td></tr> </table>	tablename	 primary key  foreign key	attribute 1	attribute 2	...	attribute n
tablename							
 primary key  foreign key							
attribute 1							
attribute 2							
...							
attribute n							

TABLE II: TYPOGRAPHICAL CONVENTIONS

Element	Font	Example
database table	<b>bold</b>	<b>dataready</b>
database table and column, when written in the dot nota- tion		<b>prodtrack.status</b>
database columns	<i>italics</i>	<i>status</i>
processes, software units, and libraries		<i>ParseSubs</i>
user-defined arguments and variables used in parameter (par) files or program com- mand lines		<i>delete-remarks object</i>
titles of documents		<i>Continuous Data Subsystem</i>
BEA supplied server software (all CAPS)		<i>BRIDGE</i>
computer code and output filenames, directories, and web sites	<code>courier</code>	<code>&gt;(list 'a 'b 'c)</code> <code>ars.scm</code>
text that should be typed in exactly as shown		<code>edit-filter-dialog</code>

## ▼ About this Document

**TABLE III: TECHNICAL TERMS**

Term	Description
Data: Administrative	database columns used for administrative purposes
Data: Descriptive	database columns that are qualitative
Data: Measurement	database columns that are quantitative
field	database column
Keys: Alternate	set of alternate database columns that uniquely define a row in a database table (unique key)
Keys: Foreign	primary key in a different table
Keys: Primary	set of database columns that uniquely define a row in a database table (unique key)

**Dates and Times**

The *time* column used throughout the S/H/I schema is stored as epochal time, the number of seconds since January 1, 1970. Epochal time has a precision of one millisecond. Often *time* is matched by the more readable field, *jdate*. This “Julian date” represents a day in the form *yyyyddd*; for example, 1981231 where 1981 is the year (*yyyy*) and 231 is the day of year (*ddd*).

**Oracle Data Types**

The PIDC database uses four of the available ORACLE data types:

- `varchar2(n)`

All character data in the database are defined to be `varchar2(n)` where *n* is the maximum number of characters in the string. `varchar2` does not store trailing blanks.

- number(*n*)

All integer fields in the database are defined to be number(*n*) where *n* is the maximum number of digits allowed in the field. Number may also be used without specifying the maximum number of digits.

- float(*n*)

ORACLE supports the float(*n*) data type where *n* is the maximum number of binary digits. Float allows the approximation of single and double precision floats commonly used in scientific programming. The decimal point may be specified anywhere from the first to the last digit (or not at all). All real numbers in the database are single precision float(24), except for epoch time fields such as *time*, *endtime*, and other time fields that are double precision float(53).

- date

The only columns in the database that are declared to be the ORACLE date data type are the *Iddate*, *moddate*, *last\_mig\_date*, *offdate*, *ondate*, and *initialdate* columns, which store the day and time a record was inserted into the database or last modified.



## Chapter 3: S/H/I Column Descriptions

This chapter describes the columns in the seismic, hydroacoustic, and infrasonic tables used at the PIDC and includes the following topics:

- Ranges
- NA Values
- Columns

## Chapter 3: S/H/I Column Descriptions

### RANGES

Wherever possible, an explicit range is defined for each column. This range is important for data integrity and database management systems that automatically check ranges. When the range consists of a relatively small number of discreet values, the following notation is used:

$$\text{column} \in \{\text{value-1}, \text{value-2}, \dots, \text{value-n}\}$$

No range is documented for columns whose value may be any floating point number.

### NA VALUES

Sometimes no information is available for a column. In that case, an “NA Value” (for Not Available) is assigned. An NA Value is outside the range of permissible or recommended values for the column. This special NA Value alerts users and applications that the desired column was not available when the record was created. For example, in the **origin** table, the column *ms* (surface wave magnitude) may be unknown for a given row. Then the NA Value for magnitudes (**-999.0**) should be assigned to *ms*, and *msid* should be set to **-1**, the NA Value for *msid*. Some columns are essential to defining a meaningful record, and they must be specified; the NA Value is not permitted. For example, the column *time* in **arrival** must be given a value in the valid range, not an NA Value. Another example is *magnitude* in **netmag** and **stamag**. Magnitude must be given a meaningful value for each record, so no NA Value is defined.

Some general guidelines and specific examples of NA Values are given in Table 122. These are only guidelines and NA values may not be unique to a particular column.

**TABLE 122: GUIDELINES AND EXAMPLES OF NA VALUES**

Column Type/Range	NA Value	Examples
character columns	– (hyphen)	<i>bmtpe, auth</i>
non-negative integers	–1	<i>chanid, avid</i>
non-negative real numbers	–1.0	<i>cfreq, deltim</i>
real numbers > –999.0	–999.0	<i>iml</i>
large real numbers	–9999999999.999, or +9999999999.999	<i>endtime, time</i>

An NA Value should not be confused with an ORACLE "NULL." NA Values are supplied by users, while ORACLE inserts the database value "NULL" when no value is specified. A column containing a database value of "NULL" appears blank when selected within SQL\*Plus. When creating a table, a column may be constrained as "NOT NULL" to require the user to supply a value. The ORACLE *describe* command will identify such columns as "NOT NULL." No correlation is intended between ORACLE "NOT NULL" requirements and IDC requirements that a column must be specified.

**▼ S/H/I Column Descriptions****COLUMNS**

---

Name:	<i>abbrev</i>	
Table:	<b>Glossary</b>	
Description:	Abbreviation name. This is the term used in <b>Origin</b> ( <b>Originref</b> , <b>Origin_temp_ga</b> ), <b>Explo</b> , and <b>Remark</b> tables in the EXPLOSION database.	
Format:	varchar2(16)	External: a16
NA Value:	NOT ALLOWED	
Range:	any string up to 16 characters	

---

Name:	<i>abbrevtype</i>	
Table:	<b>Glossary</b>	
Description:	Abbreviation type. Unique abbreviation identifier: country code, data source, explosion type, and test site.	
Format:	varchar2(16)	External: a16
NA Value:	– (hyphen)	
Range:	any string up to 16 characters	

---

Name:	<i>account</i>	
Table:	<b>Dataready</b>	
Description:	Database account name. The <i>tagid</i> and <i>tagname</i> pointing to the data to be distributed by the <i>Subscription Subsystem</i> are in this database account.	
Format:	varchar2(24)	External: a24
NA Value:	– (hyphen)	
Range:	any string up to 24 characters	

Name: *acoef*  
 Table: **Svar**  
 Description: Coefficient "a" of the quadratic trend of the log spectrum between frequencies *fmin* and *fmax*. The spectrum is measured in nm-sec.  
 Format: float(24) External: f7.2  
 NA Value: NOT ALLOWED  
 Range: any floating point value

Name: *action*  
 Table: **Allocate\_hour**  
 Description: Analyst task performed on this time-block of data.  
 Format: varchar2 (16) External: a16  
 NA Value: NOT ALLOWED  
 Range: *action* ∈ {AfterSchock, Allocate, Bull\_QC, Del\_Pass, RebDone, Scan\_Pass}

Name: *added*  
 Table: **Ex\_an**  
 Description: Number of phases added by an analyst to an expert system event solution. An added phase is an arrival not available to the expert system.  
 Format: number(8) External: i8  
 NA Value: -1  
 Range: *added* ≥ 0

**▼ S/H/I Column Descriptions**

---

Name: *address*  
Table: **Alphasite, Subs**  
Description: Internet protocol (IP) address of source of continuous data, for **alphasite**.  
FTP, and email address for **subs**.  
Format: varchar2(16) for **alphasite**      External: a16  
          varchar2(64) for **subs**  
NA Value: NOT ALLOWED  
Range: "0.0.0.0" – "255.255.255.255" for **alphasite**,  
a valid email address for **subs**

---

Name: *adef*  
Table: **Ev\_summary (Ex\_summary, An\_summary)**  
Description: Number of associated nondefining phases. The observations for these  
phases are not used in the location solution.  
Format: number(8)      External: i8  
NA Value: -1  
Range: *adef* ≥ 0

---

Name: *afsid*  
Table: **Fsave, Ftag**  
Description: Average Fourier spectrum identifier. Each average spectrum is assigned a  
unique positive integer identifying it with unique *fsid* through **fstag** that  
are used in generating the average.  
Format: number(8)      External: i8  
NA Value: NOT ALLOWED  
Range: *afsid* > 0

---

Name: *algorithm*  
 Table: **Origin (Originref, Origin\_temp\_ga)**  
 Description: Location algorithm used. This column is a brief textual description of the algorithm used for computing a seismic origin.  
 Format: varchar2(15) External: a15  
 NA Value: – (hyphen)  
 Range: any string up to 15 characters

---

Name: *amcor*  
 Table: **Siteaux**  
 Description: Site-dependent log amplitude correction.  
 Format: float(24) External: f10.1  
 NA Value: –999.0  
 Range: *amcor* > –999.0

---

Name: *amcorsd*  
 Table: **Siteaux**  
 Description: Standard deviation for log amplitude correction.  
 Format: float(24) External: f5.2  
 NA Value: –1.0  
 Range: *amcorsd* > 0.0

---

Name: *amp*  
 Table: **Amplitude, Arrival**  
 Description: Measured amplitude defined by *amptype*.  
 Format: float(24) External: f11.2  
 NA Value: –1.0  
 Units: nanometers or dimensionless depending on the type of channel  
 Range: *amp* > 0.0

---

## ▼ S/H/I Column Descriptions

---

Name: *ampid*  
Table: **Amplitude, Stamag**  
Description: Amplitude identifier. Every amplitude measure is assigned a unique positive integer that identifies it in the database. If an associated **stamag** record exists, then *ampid* links it to **amplitude**.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED in **amplitude**  
              —1 in **stamag**  
Range: *ampid* > 0

---

Name: *amplr*  
Table: **Apma**  
Description: Maximum 3-component amplitude for all overlapping time windows used in the polarization analysis. This column is equal to the sum of the square roots of the eigenvalues. The only difference between **amps** and *amplr* is in the definition of the overlapping time windows.  
Format: float(24) External: f7.2  
NA Value: —1.0  
Units: nanometers  
Range: *amplr* > 0.0

---

Name: *ampp*  
Table: **Apma**  
Description: 3-component amplitude measured at the time of the maximum rectilinearity. This column is equal to the sum of the square roots of the eigenvalues (that is, it is the sum of the amplitudes measured along the three axes of the polarization ellipsoid).  
Format: float(24) External: f7.2  
NA Value: —1.0  
Units: nanometers  
Range: *ampp* > 0.0

---

Name: *amps*  
 Table: **Apma**  
 Description: Maximum 3-component amplitude for all overlapping time windows used in the polarization analysis. This column is equal to the sum of the square roots of the eigenvalues. The only difference between *amps* and *amplr* is in the definition of the overlapping time windows.  
 Format: float(24) External: f7.2  
 NA Value: -1.0  
 Units: nanometers  
 Range: *amps* > 0.0

---

Name: *amptime*  
 Table: **Amplitude**  
 Description: Epoch time of amplitude measure.  
 Format: float(53) External: f17.5  
 NA Value: -9999999999.999  
 Units: seconds  
 Range: any valid epoch time

---

Name: *amptype*  
 Table: **Ampdescript, Amplitude**  
 Description: Amplitude measure descriptor. This descriptor is used to uniquely identify an amplitude measurement and link the description in **ampdescript** with actual measurements in **amplitude**.  
 Format: varchar2(8) External: a8  
 NA Value: - (hyphen)  
 Range: any free-format string up to eight characters

**▼ S/H/I Column Descriptions**

---

Name: *antype*  
Table: **Origaux**  
Description: Analysis type for this solution. Examples are automatic (a), manual (m), and ground truth (g).  
Format: varchar2(1) External: a1  
NA Value: – (hyphen)  
Range: *antype* ∈ {a, m, g}

---

Name: *apmarid*  
Table: **Apma**  
Description: Unique **apma** recipe identifier. Each arrival in **apma** is assigned a positive integer identifying it with the recipe used in the polarization analysis.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *apmarid* > 0

---

Name: *archid*  
Table: **Arch\_data\_type**  
Description: Archive identifier.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *archid* > 0

---

Name: *archived*  
Table: **Dfile**  
Description: Status of data archiving; archiving (a), yes (y), or no (n).  
Format: varchar2(1) External: a1  
NA Value: – (hyphen)  
Range: *archived* ∈ {a, n, y}

---

---

Name: *archiveport*  
Table: **Dlman**  
Description: Archiver port.  
Format: number(6) External: i6  
NA Value: -1  
Range:  $0 \leq \text{archiveport} \leq 16383$

---

Name: *arid*  
Table: **Amp3c, Amplitude, Apma, Arrival, Assoc (Assoc\_temp\_ga), Detection, Fkdisc, Fsdisc, Hydro\_assoc, Hydro\_features, Infra\_features, Spvar, Stamag, Thirdmom**  
Description: Arrival identifier. Each arrival is assigned a unique positive integer identifying it with a unique *sta*, *chan*, and *time*.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
-1 for **stamag, fsdisc**  
Range:  $\text{arid} > 0$

---

Name: *array*  
Table: **Request**  
Description: Array code. Network or station name.  
Format: varchar2(8) External: a8  
NA Value: NOT ALLOWED  
Range: any string matching the *net* column in **Affiliation (Stanet)**

**▼ S/H/I Column Descriptions**

---

Name: *asstr*  
Table: **Bull\_comp**  
Description: Association strength of two events: strong (s) or weak (w). An origin (**origin1**) is strongly associated with an origin in the other database account (**origin2**) if three or more defining detections for **origin1** are also associated with **origin2**, or all defining detections for **origin1** are also associated with **origin2**. If events are associated only by time and location (no arrivals available) then *asstr* is set to w.  
Format: varchar2(1) External: a1  
NA Value: NOT ALLOWED  
Range: *asstr* ∈ {s, w}

---

Name: *asta*  
Table: **Ev\_summary (Ex\_summary, An\_summary)**  
Description: Number of associated arrivals from regional arrays. "Regional" is currently defined as a station-event distance not less than 250 km and up to 2,000 km.  
Format: number(8) External: i8  
NA Value: -1  
Range: *asta* ≥ 0

---

Name: *attenid*  
Table: **Attencoef**  
Description: Attenuation coefficient set identifier. Each set of attenuation coefficients is assigned a unique positive integer to identify the change history.  
Format: varchar2(20) External: a20  
NA Value: - (hyphen)  
Range: any valid string up to 20 characters

---

Name: *attribute*  
Table: **Na\_value**  
Description: Name of the column to which a NA value is to be assigned.  
Format: varchar2(30) External: a30  
NA Value: NOT ALLOWED  
Range: any string up to 30 characters that is a valid column in this schema

---

Name: *auth*  
Table: **Allocate\_hour, Amplitude, Apma, Arrival, Discard, Event, Explo, Infra\_features, Location, Netmag, Network, Origin (Originref, Origin\_temp\_ga), Outage, Revaudit, Siteaux, Stamag, Stassoc**  
Description: Author, the originator of the data. *Auth* may also identify an application generating the record, such as an automated interpretation or signal-processing program.  
Format: varchar2(15) External: a15  
varchar2(16) for **allocate\_hour**  
NA Value: – (hyphen)  
Range: any string up to 15 characters

---

Name: *author*  
Table: **Fileproduct (Fs\_stageproduct)**  
Description: Author of the file product.  
Format: varchar2(16) External: a16  
NA Value: – (hyphen)  
Range: any string up to 16 characters

**▼ S/H/I Column Descriptions**

---

Name: *auxid*  
Table: **Outage**  
Description: Auxiliary identification code.  
Format: varchar2(4) External: a4  
NA Value: – (hyphen)  
Range: any valid auxiliary code up to four characters

---

Name: *available*  
Table: **Outage**  
Description: Flag to specify if data are available (t) or unavailable (f).  
Format: varchar2(1) External: a1  
NA Value: NOT ALLOWED  
Range: *available* ∈ {t, f}

---

Name: *ave\_noise*  
Table: **Hydro\_features**  
Description: Average pressure of the noise segment.  
Format: float(24) External: f9.4  
NA Value: –1.0  
Units: dB re  $\mu$ Pa  
Range: *ave\_noise* > 0.0

---

Name: *avgconstval*  
Table: **Qcstats**  
Description: Average value of data in masked constant segments.  
Format: float(53) External: f17.5  
NA Value: –999.0  
Units: same as waveform data  
Range: *aveconstval* ≥ 0.0

---

Name: *avtype*  
Table: **Fsave**  
Description: Description of averaged spectrum. This value is used as the channel name.  
Format: varchar2(8) External: a8  
NA Value: NOT ALLOWED  
Range: *avtype* ∈ {mean, median, 95 pct, 5 pct}

---

Name: *aweight*  
Table: **Weights**  
Description: Azimuth weight.  
Format: float(24) External: f5.2  
NA Value: 0 . 0  
Range: *aweight* ≥ 0 . 0

---

Name: *az1*  
Table: **Hydro\_arr\_group**  
Description: Azimuth estimated from the time lags of arrivals in a hydro-arrival group.  
Format: float(24) External: f7.2  
NA Value: -1 . 0  
Units: degrees  
Range: 0 . 0 ≤ *az1* < 360.0

**▼ S/H/I Column Descriptions**

---

Name: *az2*  
Table: **Hydro\_arr\_group**  
Description: Azimuth estimated from the time lags of arrivals in a hydro-arrival group. This second azimuth estimate is only needed when only two arrivals exist in a group, which results in an ambiguity between two equally likely azimuths. The error is the same for the two azimuths.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Units: degrees  
Range:  $0.0 \leq az2 < 360.0$

---

Name: *azcontrib*  
Table: **Hydro\_assoc**  
Description: Flag that specifies if an arrival that belongs to a hydro arrival group was used to calculate the azimuth.  
Format: varchar2(1) External: a1  
NA Value: - (hyphen)  
Range: *azcontrib* ∈ {y, n}

---

Name: *azdef*  
Table: **Assoc (Assoc\_temp\_ga)**  
Description: Azimuth-defining code. The one-character flag indicates whether or not the azimuth of a phase was used to constrain the event location solution. This column is defining (*azdef* = d) if it was used in the location, nondefining (*azdef* = n) if it was not.  
Format: varchar2(1) External: a1  
NA Value: - (hyphen)  
Range: *azdef* ∈ {d, n}

---

Name: *azimuth*  
Table: **Arrival, Parrival, Stassoc**  
Description: Observed azimuth. This value is the estimated station-to-event azimuth measured clockwise from North. The estimate is made from f-k or polarization analysis. In **stassoc**, the value may be an analyst estimate.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Units: degrees  
Range:  $0.0 \leq \text{azimuth} < 360.0$

---

Name: *azres*  
Table: **Allow\_resid, Assoc (Assoc\_temp\_ga)**  
Description: Azimuth residual. The value is the difference between the measured station-to-event azimuth for an arrival and the true azimuth. The true azimuth is the bearing to the inferred event origin.  
Format: float(24) External: f7.1  
NA Value: -999.0  
Units: degrees  
Range:  $-180.0 \leq \text{azres} \leq 180.0$

## ▼ S/H/I Column Descriptions

Name:	<i>band</i>
Table:	<b>Instrument</b>
Description:	Frequency band. The value is a qualitative indicator of frequency pass-band for an instrument. Values should reflect the response curve rather than just the sample rate. Recommended values are as follows:
	s (short-period)
	m (mid-period)
	i (intermediate-period)
	l (long-period)
	b (broadband)
	h (high-frequency, very short-period)
	v (very long-period)

For a better notion of the instrument characteristics, see the instrument response curve.

Format: varchar2(1) External: a1  
 NA Value: – (hyphen)  
 Range:  $band \in \{s, m, i, l, b, h, v\}$

Name: *bandw*  
Table: **Amplitude, Detection, Fkdisc**  
Description: Frequency bandwidth.  
Format: float(24) External: f7.3  
NA Value: -1.0  
Units: Hertz  
Range: *bandw* > 0.0

---

Name: *bcoef*  
 Table: **Svar**  
 Description: Coefficient "b" of the quadratic trend of the log spectrum between frequencies *fmin* and *fmax*. The spectrum is measured in nm-sec.  
 Format: float(24) External: f7.2  
 NA Value: NOT ALLOWED  
 Range: any floating point value

---

Name: *begin\_date*  
 Table: **Participation**  
 Description: Beginning date of station participation in a particular *net*.  
 Format: number(8) External: i8  
 NA Value: NOT ALLOWED  
 Range: any valid Julian date (yyyyddd)

---

Name: *belief*  
 Table: **Assoc (Assoc\_temp\_ga)**  
 Description: Phase identification confidence level. The value is a qualitative estimate of the confidence that a seismic phase is correctly identified.  
 Format: float(24) External: f4.2  
 NA Value: -1.0  
 Range:  $0.0 \leq belief \leq 1.0$

---

Name: *bmtyp*  
 Table: **Detection**  
 Description: String indicating a coherent (coh), incoherent (inc), or horizontal (hor) beam type.  
 Format: varchar2(4) External: a4  
 NA Value: - (hyphen)  
 Range:  $bmtyp \in \{\text{coh}, \text{inc}, \text{hor}\}$

---

## ▼ S/H/I Column Descriptions

---

Name: *bordercolor*  
Table: **Mapdisc**  
Description: Map border color name. A solid colored border may appear on the top, bottom, and right of any raster map.  
Format: varchar2(32) External: a32  
NA Value: – (hyphen)  
Range: any string up to 32 characters that forms a valid X11 color name (for example, black)

---

Name: *calib*  
Table: **Wfdisc (Wfproto)**  
Description: Calibration factor. The value is the conversion factor that maps digital data to earth displacement. The factor holds true at the oscillation period specified by the column *calper*. A positive value means ground motion increasing in component direction (up, north, east) is indicated by increasing counts. A negative value means the opposite. *Calib* generally reflects the best calibration information available at the time of recording, but refinement may be given in **Sensor**, reflecting a subsequent recalibration of the instrument (see *calratio*).  
Format: float(24) External: f16.6  
NA Value: NOT ALLOWED  
Units: nanometers/digital count  
Range: any nonzero floating point number

---

Name: *calper*  
Table: **Sensor, Wfdisc (Wfproto)**  
Description: Calibration period. This gives the period for which *calib*, *n calib*, and *calratio* are valid.  
Format: float(24) External: f16.6  
NA Value: NOT ALLOWED  
Units: seconds  
Range: *calper* > 0 . 0

---

Name: *calratio*  
Table: **Sensor**  
Description: Calibration conversion ratio. The value is a dimensionless calibration correction factor that permits small refinements to the calibration correction made using *calib* and *calper* from the **Wfdisc (Wfproto)** table. Often, the **wfdisc** *calib* contains the nominal calibration assumed at the time of data recording. If the instrument is recalibrated, *calratio* provides a mechanism to update calibrations from **wfdisc** with the new information without modifying the **wfdisc** table. A positive value means ground motion increasing in component direction (up, north, east) is indicated by increasing counts. A negative value means the opposite. *Calratio* is meant to reflect the most accurate calibration information for the time period for which the sensor record is appropriate, but the nominal value may appear until other information is available.  
Format: float(24) External: f16.6  
NA Value: NOT ALLOWED  
Range: any nonzero floating point number

---

Name: *ccoef*  
Table: **Spvar**  
Description: Coefficient "c" of the quadratic trend of the log spectrum between frequencies *fmin* and *fmax*. The spectrum is measured in nm-sec.  
Format: float(24) External: f7.2  
NA Value: NOT ALLOWED  
Range: any floating point value

**▼ S/H/I Column Descriptions**

---

Name: *cep\_delay\_time\_signal*  
Table: **Hydro\_features**  
Description: Bubble pulse delay time estimate where the cepstrum is computed from the NSE-detrended spectrum.  
Format: float(24) External: f9.4  
NA Value: -1.0  
Units: seconds  
Range: *cep\_delay\_time\_signal* > 0.0

---

Name: *cep\_delay\_time\_trend*  
Table: **Hydro\_features**  
Description: Bubble pulse delay time estimate where the cepstrum is computed from the trend of NSE-detrended spectrum.  
Format: float(24) External: f9.4  
NA Value: -1.0  
Units: seconds  
Range: *cep\_delay\_time\_trend* > 0.0

---

Name: *cep\_peak\_std\_signal*  
Table: **Hydro\_features**  
Description: Number of standard deviations from the mean for the largest cepstrum amplitude where the cepstrum is computed from the NSE-detrended spectrum.  
Format: float(24) External: f9.4  
NA Value: -1.0  
Units: standard deviations  
Range: *cep\_peak\_std\_signal* > 0.0

---

Name: *cep\_peak\_std\_trend*  
Table: **Hydro\_features**  
Description: Number of standard deviations from the mean for the largest cepstrum amplitude where the cepstrum is computed with the trend of the NSE-detrended spectrum.  
Format: float(24) External: f9.4  
NA Value: -1.0  
Units: standard deviations  
Range: *cep\_peak\_std\_trend* > 0.0

---

Name: *cep\_var\_signal*  
Table: **Hydro\_features**  
Description: Variance of the cepstrum computed using NSE-detrended spectrum.  
Format: float(24) External: f9.4  
NA Value: -1.0  
Units: seconds  
Range: *cep\_var\_signal* > 0.0

---

Name: *cep\_var\_trend*  
Table: **Hydro\_features**  
Description: Variance of the cepstrum computed using the trend from the NSE-detrended spectrum.  
Format: float(24) External: f9.4  
NA Value: -1.0  
Units: standard deviations  
Range: *cep\_var\_trend* > 0.0

▼ **S/H/I Column Descriptions**

---

Name: *cfreq*  
 Table: **Amp3c, Detection, Fkdisc**  
 Description: Center frequency of a beam or f-k spectrum.  
 Format: float(24) External: f7.2  
 NA Value: -1.0  
 Units: Hertz  
 Range: *cfreq* > 0.0

---

Name: *chan*  
 Table: **Amplitude, Arrival, Attencoef, Beamaux, Chan\_groups, Detection, Dlfile, EvscRegional, Fileproduct (Fs\_stageproduct), Forbeamaux, Fsdisc, Fwgap, Outage, Producttypesta, Qcstats, Request, Sensor, Siteaux, Sitechan, Sitepoll, Wfconv, Wfdisc (Wfproto)**  
 Description: Channel identifier. The value is an eight-character code that specifies a particular channel within a network (station), which, taken together with *sta* and *time*, uniquely identifies seismic timeseries data, including the geographic location, spatial orientation, sensor, and subsequent data processing (beam channel descriptor).  
 Format: varchar2(8) External: a8  
 varchar2(6) for **sitepoll**  
 NA Value: NOT ALLOWED  
 Range: any lower-case string up to eight characters

---

Name: *chanid*  
 Table: **Arrival, Dlfile, Fsdisc, Sensor, Sitechan, Wfconv, Wfdisc (Wfproto)**  
 Description: Channel recording identifier. The value is a surrogate key used to uniquely identify a specific recording. *Chanid* duplicates the information of the compound key *sta, chan, time*.  
 Format: number(8) External: i8  
 NA Value: -1  
 Range: *chanid* > 0

---

Name: *class*  
 Table: **Chan\_groups, Interval, Problem, Request**  
 Description: Problem class or object class for **interval** and **request**.  
 Format: varchar2(16) External: a16  
           varchar2(33) for **problem**  
 NA Value: – (hyphen)  
 Range: any free-format string up to the character limit

---

Name: *clip*  
 Table: **Amplitude, Arrival, Wfdisc (Wfproto)**  
 Description: Clipped data flag. The value is a single-character flag to indicate whether (c) or not (n) the data were clipped.  
 Format: varchar2(1) External: a1  
 NA Value: – (hyphen)  
 Range: *clip* ∈ {c, n}

---

Name: *clrpth*  
 Table: **Evsc\_prod**  
 Description: Hydroacoustic clear-path flag. Set to '1' if all paths within the location error ellipse are clear to at least one hydroacoustic station in a given set.  
 Format: number(1) External: i1  
 NA Value: –1  
 Range: *clrpth* ∈ {0,1}

**▼ S/H/I Column Descriptions**

---

Name: *coh\_deldur*  
Table: **Infra\_features**  
Description: Estimated standard deviation in *coh\_dur*.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Units: seconds  
Range: *coh\_deldur* > 0.0

---

Name: *coh\_dur*  
Table: **Infra\_features**  
Description: Time period during which the spatial coherence (reckoned as F-Statistic) "beam" exceeded its threshold for the current time interval of spatial coherence in excess of its threshold value.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: seconds  
Range: *coh\_dur* > 0.0

---

Name: *coh\_per*  
Table: **Infra\_features**  
Description: Dominant period of the spatially coherent signal. The value is estimated from the inverse of the frequency of the maximum power in a windowed spectrum of the traditional beamformed waveform data during the time interval defined by *coinc\_time* and *coh\_dur*.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: seconds  
Range: *coh\_per* > 0.0

---

Name: *coh\_snr*  
Table: **Infra\_features**  
Description: Equivalent, equal channel, coherent signal-to-noise ratio; the inband power in the spatially coherent fraction of the arrival divided by the total inband non-coherent noise.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Units: seconds  
Range: *coh\_snr* > 0.0

---

Name: *coh\_time*  
Table: **Infra\_features**  
Description: Earliest time at which the spatial coherence (determined as F-Statistic) "beam" exceeded its threshold for the current time interval of spatial coherence in excess of its threshold value.  
Format: float(53) External: f17.5  
NA Value: -999999999.999  
Units: seconds  
Range: *coh\_time* > -999999999.999

---

Name: *coinc\_deldur*  
Table: **Infra\_features**  
Description: Estimated standard deviation in *coinc\_dur*.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Units: seconds  
Range: *coinc\_deldur* > 0.0

**▼ S/H/I Column Descriptions**

---

Name: *coinc\_dur*  
Table: **Infra\_features**  
Description: Time period during which both the STA/LTA on the traditional beam and the sample-by-sample F-Statistic beams exceed their respective thresholds for the current time interval of coincidence detection.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: seconds  
Range: *coinc\_dur > 0.0*

---

Name: *coinc\_time*  
Table: **Infra\_features**  
Description: Earliest time at which the STA/LTA applied to the traditional beam and the spatial coherence "beam" both exceeded their respective thresholds for the current time interval of coincidence detection.  
Format: float(53) External: f17.5  
NA Value: -999999999.999  
Units: seconds  
Range: *coinc\_time > -999999999.999*

---

Name: *col\_depth*  
Table: **Expl0**  
Description: Depth of collapse crater. Depth of the deepest point of the collapse crater relative to the original ground surface.  
Format: float(24) External: f7.4  
NA Value: -1  
Units: kilometers  
Range: *col\_depth ≥ 0.0*

---

Name: col\_diameter  
Table: **Expl0**  
Description: Diameter of collapse crater.  
Format: float(24) External: f7.4  
NA Value: -1  
Units: kilometers  
Range: *col\_diameter* ≥ 0 . 0

---

Name: col\_interval  
Table: **Expl0**  
Description: Collapse interval. Time interval after shot time of collapse, as determined by geophone and television monitoring.  
Format: float(24) External: f10.0  
NA Value: -1  
Units: seconds  
Range: *col\_interval* ≥ 0 . 0

---

Name: col\_volume  
Table: **Expl0**  
Description: Volume of collapse crater.  
Format: float(24) External: f10.7  
NA Value: -1  
Units: kilometers<sup>3</sup>  
Range: *col\_volume* ≥ 0 . 0

**▼ S/H/I Column Descriptions**

---

Name: *colormapid*  
Table: **Colordisc, Mapcolor**  
Description: Colordisc identifier. Each colordisc is assigned a unique positive integer that identifies it in a database. The *colormapid* identifies color-lookup tables available to maps.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *colormapid* > 0

---

Name: *colormapname*  
Table: **Colordisc**  
Description: Colormap name that identifies the color-lookup table in a listing of available tables.  
Format: varchar2(64) External: a64  
NA Value: NOT ALLOWED  
Range: any string up to 64 characters

---

Name: *colorname*  
Table: **Overlaydisc**  
Description: Overlay color name.  
Format: varchar2(32) External: a32  
NA Value: – (hyphen)  
Range: any valid color name

---

Name: *command*  
 Table: **Msgaux**  
 Description: Command that was being executed when the failure occurred. If this cannot be determined, such as a caught signal from UNIX, then the value is set to "signal caught."  
 Format: varchar2(24) External: a24  
 NA Value: – (hyphen)  
 Range: any string up to 24 characters

---

Name: *commid*  
 Table: **Allocate\_hour**, **Alphasite**, **Apma**, **Arrival**, **Assoc** (**Assoc\_temp\_ga**), **Channame**, **Datauser**, **Detection**, **Dlfile**, **Dlman**, **Event**, **Explo**, **Fkdisc**, **Fsave**, **Fsdisc**, **Infra\_features**, **Location**, **Msgdisc**, **Netmag**, **Network**, **Origerr** (**Origerr\_temp\_ga**), **Origin** (**Originref**, **Origin\_temp\_ga**), **Outage**, **Remark**, **Siteaux**, **Stamag**, **Stassoc**, **Wfconv**, **Wfdisc** (**Wfproto**)  
 Description: Comment identifier. The value is a key that points to free-form comments entered in the **remark** table. These comments store additional information about a record in another table. The **remark** table can have many records with the same *commid* and different *lineno*, but the same *commid* will appear in only one other record among the rest of the tables in the database (see *lineno*).  
 Format: number(8) External: i8  
 NA Value: –1  
 NOT ALLOWED for **remark**  
 Range: *commid* > 0

---

Name: *complete*  
 Table: **Request**  
 Description: Percentage complete. Percentage of waveform data acquired for this request.  
 Format: number(8) External: i8  
 NA Value: NOT ALLOWED  
 Range:  $0 \leq \text{complete} \leq 100$

**▼ S/H/I Column Descriptions**

---

Name: *complexity*  
Table: **Complexity**  
Description: Signal complexity measure estimated by *DFX* application.  
Format: float(24) External: f11.4  
NA Value: -1.0  
Range: *complexity*  $\geq 0.0$

---

Name: *conf*  
Table: **Origerr (Origerr\_temp\_ga)**  
Description: Confidence measure for a particular event identification method.  
Format: float(24) External: f5.3  
NA Value: NOT ALLOWED  
Range:  $0.5 \leq conf \leq 1.0$

---

Name: *connmanport*  
Table: **Dlman**  
Description: Connection manager (*ConnMan*) port number used to send messages to the diskloop manager application.  
Format: number(6) External: i6  
NA Value: 0  
Range:  $1 \leq connmanport \leq 16383$

Name: *consider*  
 Table: **Evsc\_prod**  
 Description: Flag indicating whether (1) or not (0) an event was considered for screening.  
 Format: number(1) External: i1  
 NA Value: NOT ALLOWED  
 Units: *consider*  $\in \{0, 1\}$

Name: *const*  
 Table: **Qcstats**  
 Description: Amount of data in the detection processing interval masked due to constant segments.  
 Format: float(53) External: f17.5  
 NA Value: -999.0  
 Units: seconds  
 Range: *const*  $\geq 0.0$

Name: *constrain\_depth*  
 Table: **Event\_control (In\_event\_control)**  
 Description: Logical descriptor that tells location process whether or not to fix (constrain) the current hypocentral depth. If TRUE (1), the depth will be fixed to the value specified on the first (summary) line of the DATA file or as specified by the *depth* column of the **Origin** (**Originref**, **Origin\_temp\_ga**) table. If FALSE (0), the *depth* is an independent solution parameter. Default is TRUE.  
 Format: number(1) External: i1  
 NA Value: NOT ALLOWED  
 Range: *constrain\_depth*  $\in \{0, 1\}$

**▼ S/H/I Column Descriptions**

---

Name: *constrain\_lation*  
Table: **Event\_control (In\_event\_control)**  
Description: Logical descriptor that tells location process whether or not to fix (constrain) the current epicentral location. If TRUE (1), the latitude and longitude will be fixed to the value specified by the *lat* and *lon* columns of the **Origin (Originref, Origin\_temp\_ga)** table. If FALSE (0), the latitude and longitude are independent solution parameters. Default is FALSE.  
Format: number(1) External: i1  
NA Value: NOT ALLOWED  
Range: *constrain\_lation* ∈ {0, 1}

---

Name: *constrain\_ot*  
Table: **Event\_control (In\_event\_control)**  
Description: Logical descriptor that tells location process whether or not to fix (constrain) the current origin time. If TRUE (1), the origin time will be fixed to the value specified by the *time* column of the **Origin (Originref, Origin\_temp\_ga)** table. If FALSE (0), the origin time is an independent solution parameter. Default is FALSE.  
Format: number(1) External: i1  
NA Value: NOT ALLOWED  
Range: *constrain\_ot* ∈ {0, 1}

---

Name: *controlport*  
Table: **Dlman**  
Description: DataControl port. Number used to send commands to the diskloop manager application.  
Format: number(6) External: i6  
NA Value: 0  
Range: 0 ≤ *controlport* ≤ 16383

---

Name: *country*  
Table: **Site\_address**  
Description: Full country name for a sensor site.  
Format: varchar2(40) External: a40  
NA Value: – (hyphen)  
Range: any string up to 40 characters

---

Name: *cov\_depth\_time*  
Table: **Event\_control (In\_event\_control)**  
Description: Coverage ellipse depth/time conversion factor. The value is the conversion factor to be multiplied by the depth and origin time axes (*sdepth* and *stime*) of the confidence ellipse to recover the coverage ellipse without having to do a complete relocation.  
Format: float(24) External: f9.4  
NA Value: –999.0  
Range: *cov\_depth\_time* > 0.0

---

Name: *cov\_sm\_axes*  
Table: **Event\_control (In\_event\_control)**  
Description: Coverage ellipse semi-axis conversion factor. The value is the conversion factor to be multiplied by the semi-major and semi-minor axes of the confidence ellipse to recover the coverage ellipse without having to do a complete relocation.  
Format: float(24) External: f9.4  
NA Value: –999.0  
Range: *cov\_sm\_axes* > 0.0

**▼ S/H/I Column Descriptions**

---

Name: *cp\_broad\_band*  
Table: **Evsc\_hydro**  
Description: The *cep\_peak\_std\_signal* from table **Hydro\_features** in the 2–80 Hz band for a given *orid/sta* pair.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Units: standard deviations  
Range: *cp\_broad\_band* > 0.0

---

Name: *crnr\_delfreq*  
Table: **Infra\_features**  
Description: Estimated standard deviation in *crnr\_freq*.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Units: Hertz  
Range: *crnr\_delfreq* > 0.0

---

Name: *crnr\_freq*  
Table: **Infra\_features**  
Description: Corner frequency estimated from a windowed traditional FFT spectrum (rendered on a dB power scaling) applied to the traditional beam-formed waveform data.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Units: Hertz  
Range: *crnr\_freq* > 0.0

Name: *ctype*  
 Table: **Sitechan**  
 Description: Channel type. This column specifies the type of data channel: *n* (normal, a normal instrument response), *b* (beam, a coherent beam formed with array data), or *i* (an incoherent beam or energy stack).  
 Format: varchar2(4) External: a4  
 NA Value: – (hyphen)  
 Range: *ctype* ∈ {*n*, *b*, *i*}

---

Name: *cycle\_size*  
 Table: **Productcriteria**  
 Description: Size to which a subscription product should be allowed to grow before distributing.  
 Format: number(8) External: i8  
 NA Value: –1  
 Units: Kilobytes  
 Range: *cycle\_size* > 0

---

Name: *cycle\_time*  
 Table: **Productcriteria**  
 Description: Period of cyclicity for a product in the *Subscription Subsystem* that is how often a product should be delivered.  
 Format: number(4) External: i4  
 NA Value: –1  
 Units: Hours  
 Range: *cycle\_time* > 0

**▼ S/H/I Column Descriptions**

---

Name: *dasta*  
Table: **Ex\_an**  
Description: Difference in number of regional array stations contributing to the analyst and expert system origins. The value is [*asta* (analyst) – *asta* (expert system)] for analyst versus expert system comparisons or [*asta* (bulletin1) – *asta* (bulletin2)] for more general bulletin comparisons.  
Format: number(8) External: i8  
NA Value: –999  
Range: *dasta* > –999

---

Name: *data\_info*  
Table: **Dataready**  
Description: Miscellaneous data information for the *Subscription Subsystem*, such as the station name for station processing.  
Format: varchar2(24) External: a24  
NA Value: – (hyphen)  
Range: any character string up to 24 characters

---

Name: *dataday*  
Table: **Rebdone\_dataday\_flag**  
Description: Julian day of this dataday.  
Format: number(12) External: i12  
NA Value: NOT ALLOWED  
Range: Julian dates are of the form yyyyddd

---

Name: *dataid*  
 Table: **Dataready, Prodtrack**  
 Description: Unique identifier for the **dataready** table.  
 Format: number(8) External: i8  
 NA Value: -1  
 Range: *dataid* ≥ 0

---

Name: *datatype*  
 Table: **Fsave, Fsdisc, Wfdisc (Wfproto)**  
 Description: Numeric data storage. This column specifies the format of a data series in the file system. Data types *i4*, *f4*, and *s4* are typical values. Datatype *i4* denotes a 4-byte integer and *f4* denotes a 32-bit real number. *s4* is an integer where the most significant byte is in the low address position in memory and is opposite to the *i4* order. Machine-dependent formats are supported for common hardware to allow data transfer in native machine binary formats. ASCII formats have also been defined to retain full precision of any binary data type. ASCII may be used when exchanging data between computer systems with incompatible binary types. (See the *wfport* command manual page for information about converting formats.) Datatype can only describe single values or arrays of one data type.  
 Format: varchar2(2) External: a2  
 NA Value: - (hyphen)  
 Range: The currently recognized types (lower case is mandatory) are as follows:  
 a0 = 15-byte ASCII single precision  
 b0 = 24-byte ASCII double precision  
 c0 = 12-byte ASCII integer  
 a# = 15-byte ASCII single precision  
 b# = 24-byte ASCII double precision  
 c# = 12-byte ASCII integer  
 t4 = 4-byte SUN IEEE single precision real  
 t8 = 8-byte SUN IEEE double precision real  
 s4 = 4-byte SUN IEEE integer  
 s2 = 2-byte SUN IEEE short integer  
 f4 = 4-byte VAX IEEE single precision real

**▼ S/H/I Column Descriptions**

f8 = 8-byte VAX IEEE double precision real  
i4 = 4-byte VAX IEEE integer  
i2 = 2-byte VAX IEEE short integer  
g2 = 2-byte NORESS gain-ranged

---

Name: *datatype*  
Table: **Arch\_data\_type**  
Description: Data type (or class of data).  
Format: varchar2(24) External: a24  
NA Value: – (hyphen)  
Range: any string up to 24 characters

---

Name: *datsw*  
Table: **Fkdisc**  
Description: A switch to indicate a data format data type. Proper values will be defined through the software libraries and include files. A manual (man) page will explain the meaning of *datsw* values and reference related software man pages.  
Format: number(10) External: i10  
NA Value: NOT ALLOWED  
Range: *datsw* > 0

---

Name: *ddepth*  
Table: **Bull\_comp, Ex\_an**  
Description: Difference in depth between corresponding origin locations. For depth comparisons between analysts and the expert system, the value is [*depth* (analyst) – *depth* (expert system)]. For more general bulletin comparisons, the value is [*depth* (bulletin1) – *depth* (bulletin2)].  
Format: float(24) External: f6.1  
NA Value: –999.0  
Units: kilometers  
Range: *ddepth* > –999.0

---

Name: *ddepthp*  
 Table: **Ex\_an**  
 Description: Difference in the number of defining depth phases associated with analyst and expert system origins. A depth phase is a member of the set, {sP, pP, sS}. The value is:  

$$[(\text{number-analyst-phases}) - (\text{number-expert-phases})].$$
  
 Format: number(8) External: i8  
 NA Value: -999  
 Range: *ddepthp* > -999

---

Name: *ddist*  
 Table: **Bull\_comp, Ex\_an**  
 Description: Difference in distance between corresponding origins in a bulletin comparison.  
 Format: float(24) External: f8.3  
 NA Value: -1.0  
 Units: kilometers  
 Range: *ddist* ≥ 0.0

---

Name: *deast*  
 Table: **Site**  
 Description: Distance east. This column gives the "easting," or the relative position of an array element east of the location of the array center specified by the value of *refsta* (see *dnorth*).  
 Format: float(24) External: f9.4  
 NA Value: 0.0  
 Units: kilometers  
 Range: -20,000.0 ≤ *deast* ≤ 20,000.0

**▼ S/H/I Column Descriptions**

---

Name: *delaz*  
Table: **Arrival, Detection, Hydro\_arr\_group**  
Description: Azimuth uncertainty. This column is an estimate of the standard deviation of the azimuth of a signal.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Units: degrees  
Range: *delaz* > 0.0

---

Name: *deliv\_meth*  
Table: **Subs**  
Description: Delivery method for subscription products.  
Format: varchar2(6) External: a6  
NA Value: - (hyphen)  
Range: *deliv\_meth* ∈ {ftp, email, www}

---

Name: *delivid*  
Table: **Prodtrack, Productcriteria**  
Description: Identifier that is unique and consecutive for each product constraint.  
Format: number(8) External: i8  
NA Value: -1  
Range: *delivid* ≥ 0

---

Name: *delslo*  
 Table: **Arrival, Detection**  
 Description: Slowness uncertainty. This column is an estimate of the standard deviation of the slowness of a signal.  
 Format: float(24) External: f7.2  
 NA Value: -1.0  
 Units: seconds/kilometers for **detection**  
       seconds/degree for **arrival**  
 Range: *delslo* > 0.0

---

Name: *delta*  
 Table: **Assoc (Assoc\_temp\_ga), EvscRegional, Parrival, Stamag**  
 Description: Source-receiver distance. This column is the arc length, over the earth's surface, of the path the seismic phase follows from source to receiver. The location of the origin is specified in the **Origin (Originref, Origin\_temp\_ga)** record referenced by the column *orid*. The column *arid* points to the record in the **Arrival** table that identifies the receiver. The value of the column can exceed 360 degrees. The geographic distance between source and receiver is *delta* modulo(180).  
 Format: float(24) External: f8.3  
 NA Value: -1.0  
 Units: degrees  
 Range: *delta* ≥ 0.0

---

Name: *deltim*  
 Table: **Arrival, Detection**  
 Description: Arrival time uncertainty. This column is an estimate of the standard deviation of an arrival time.  
 Format: float(24) External: f6.3  
 NA Value: -1.0  
 Units: seconds  
 Range: *deltim* > 0.0

**▼ S/H/I Column Descriptions**

---

Name: *depdp*  
Table: **Origin (Originref, Origin\_temp\_ga)**  
Description: Depth as estimated from depth phases. The value is a measure of event depth estimated from a depth phase or an average of several depth phases. Depth is measured positive in a downwards direction starting from the earth's surface (see *ndp*).  
Format: float(24) External: f9.4  
NA Value: -999.0  
Units: kilometers  
Range:  $0.0 \leq depdp < 1000.0$

---

Name: *depth*  
Table: **Evsc\_prod, Origin (Originref, Origin\_temp\_ga), Stassoc**  
Description: Source depth. This column gives the depth (positive down) of the event origin. Negative depth implies an atmospheric event. In **stassoc**, this may be an analyst estimate.  
Format: float(24) External: f9.4  
NA Value: -999.0  
Units: kilometers  
Range:  $-100.0 \leq depth < 1000.0$   
 $0 \leq depth < 1000.0$  for **evsc\_prod**

---

Name: *depth\_conf*  
Table: **Producttypeevsc**  
Description: Confidence level of a one-sided confidence interval of the source depth, used for the depth screening criterion.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Range:  $0 < depth\_conf < 1.0$

---

Name: *depth\_kvalue*  
 Table: **Producttypeevsc**  
 Description: Depth uncertainty k-value, used to specify additional uncertainty in seismic free-depth solutions.  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Units: kilometers  
 Range:  $0.0 < \text{depth\_kvalue} < 1000.0$

---

Name: *depth\_thresh*  
 Table: **Producttypeevsc**  
 Description: Depth screening threshold. An event with a one-sided confidence interval for its source depth that is deeper than this threshold is screened out at the confidence level given by *depth\_conf*.  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Units: kilometers  
 Range:  $0.0 < \text{depth\_thresh} < 1000.0$

---

Name: *deptherr*  
 Table: **Evsc\_prod**  
 Description: Depth error. This is the size of the one-sided depth confidence interval used for event screening for a confidence level given by *depth\_conf* in table **Producttypeevsc**. A model uncertainty term, given by *depth\_kvalue* in table **producttypeevsc**, is included for free-depth solutions.  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Units: kilometers  
 Range:  $\text{deptherr} > 0.0$

**▼ S/H/I Column Descriptions**

---

Name: *depthp*  
Table: **Ev\_summary (Ex\_summary, An\_summary)**  
Description: Number of time-defining depth phases. A depth phase is a member of the set {sP, pP, sS}.  
Format: number(8) External: i8  
NA Value: -1  
Range: *depthp* ≥ 0

---

Name: *descr*  
Table: **Ampdescript**  
Description: Text description. Describes amplitude measurement parameters.  
Format: varchar2(255) External: a255  
NA Value: – (hyphen)  
Range: any free-format string up to column size

---

Name: *descrip*  
Table: **Glossary, Location, Problem, Ref\_loc, Sitechan**  
Description: Text description.  
Format: varchar2(50) External: a128  
varchar2(80) for **ref\_loc, glossary**  
varchar2(129) for **problem**  
NA Value: – (hyphen)  
Range: any free-format string up to the character limit

---

Name: *dest*  
Table: **Mig\_rules**  
Description: Destination database for migration.  
Format: varchar2(10) External: a10  
NA Value: NOT ALLOWED  
Range: any string up to 10 characters that is a valid name of database server

---

Name: *dest\_tbl*  
Table: **Mig\_rules**  
Description: Destination table for database migration.  
Format: varchar2(30) External: a30  
NA Value: NOT ALLOWED  
Range: any string up to 30 characters that is a valid table name

---

Name: *detendtime*  
Table: **Qcstats**  
Description: End time of actual interval used for detection processing.  
Format: float(53) External: f17.5  
NA Value: -999.0  
Units: seconds  
Range: *detendtime* < 9999999999.999

---

Name: *detttime*  
Table: **Qcstats**  
Description: Start time of actual interval used for detection processing.  
Format: float(53) External: f17.5  
NA Value: -999.0  
Units: seconds  
Range: *detttime* < 9999999999.999

---

Name: *dfid*  
Table: **Dlfile**  
Description: Diskloop file identifier.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *dfid* > 0

## ▼ S/H/I Column Descriptions

---

Name: *dfile*

Table: **Colordisc, Dlfile, Fileproduct (Fs\_stageproduct), Fkdisc, Fsave, Fsdisc, Fwfile, Glossary, Instrument, Mapdisc, Msgdisc, Overlaydisc, Problemlog, Wfdisc (Wfproto)**

Description: Name of data file. Name of the heap file (**f<sub>w</sub>file**). In **f<sub>k</sub>disc**, the value is the filename of an f-k disk file. In **f<sub>s</sub>disc**, the value is the filename of a Fourier Spectrum disk file (see *dir*), and so on.

Format: varchar2(32) External: a32  
varchar2(65) for **problemlog**

NA Value: NOT ALLOWED

Range: any string up to the character limit that conforms to UNIX filename syntax

---

Name: *dfilesize*

Table: **Fwfile**

Description: Buffer file size for temporary storage of continuous data.

Format: number(9) External: i9

NA Value: NOT ALLOWED

Range:  $0 < dfilesize <$  disk partition size

---

Name: *did*

Table: **Ex\_an**

Description: Difference in event type between the analyst and expert system origins (see *etype*). *Did* is *y* if the event types are the same or *n* if the event types are different.

Format: varchar2(4) External: a4

NA Value: – (hyphen)

Range:  $did \in \{y, n\}$

---

---

Name: *digital*  
Table: **Instrument**  
Description: Flag denoting whether this instrument record describes an analog (a) or digital (d) recording system.  
Format: varchar2(1) External: a1  
NA Value: – (hyphen)  
Range: *digital* ∈ {d, a}

---

Name: *dimx*  
Table: **Mapdisc**  
Description: Width (or x-dimension) of the map in pixels.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Units: pixels  
Range: *dimx* > 0

---

Name: *dimy*  
Table: **Mapdisc**  
Description: Height (or y-dimension) of the map in pixels.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Units: pixels  
Range: *dimy* > 0

## ▼ S/H/I Column Descriptions

Name:	<i>dir</i>
Table:	<b>Colordisc, Dlfile, Fileproduct (Fs_stageproduct), Fkdisc, Fsave, Fsdisc, Fwfile, Glossary, Instrument, Mapdisc, Msgdisc, Overlaydisc, Problemlog, Wfdisc (Wfproto)</b>
Description:	Directory. This column is the directory part of a path name. Relative path names or “.” (dot), the notation for the current directory, may be used. Directory where the heap file is located ( <b>fwdisc</b> ). Directory to find file ( <b>msgdisc</b> ).
Format:	varchar2(64) External: a64 varchar2(129) for <b>problemlog</b>
NA Value:	NOT ALLOWED
Range:	any string that conforms to UNIX directory name syntax

Name:	<i>dist</i>	
Table:	<b>Stassoc</b>	
Description:	Estimated distance. This column gives the approximate source-receiver distance as calculated from slowness (array measurements only), incident angle, or (S-P) times.	
Format:	float(24)	External: f7.2
NA Value:	-1.0	
Units:	degrees	
Range:	0 . 0 ≤ <i>dist</i> ≤ 180 . 0	

Name: *dlat*  
Table: **Seisindex (Dseisindex)**  
Description: Latitude increment between grid cells in **Seisgrid (Dseisgrid)**.  
Format: float(24) External: f9.4  
NA Value: NOT ALLOWED  
Units: degrees  
Range: *dlat* ≥ 0.0

---

Name: *dlid*  
Table: **Alphasite, Dlfile, Dlman**  
Description: Diskloop manager identification.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *dlid* > 0

---

Name: *dlon*  
Table: **Seisindex (Dseisindex)**  
Description: Longitude increment between grid cells in **Seisgrid (Dseisgrid)**.  
Format: float(24) External: f9.4  
NA Value: NOT ALLOWED  
Units: degrees  
Range: *dlon* ≥ 0 . 0

---

Name: *dlsta*  
Table: **Ex\_an**  
Description: In a comparison of bulletins, *dlsta* is the difference in the number of local stations contributing to the same event from the corresponding bulletins. The value is [*lsta* (analyst) – *lsta* (expert system)] for analyst versus expert system comparisons, and [*lsta* (bulletin1) – *lsta* (bulletin2)] for more general bulletin comparisons.  
Format: number(8) External: i8  
NA Value: -999  
Range: *dlsta* > -999

**▼ S/H/I Column Descriptions**

---

Name: *dmax*  
Table: **Attencoef**  
Description: Maximum distance for which the regional distance correction is applicable.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: kilometers  
Range:  $0.0 < dmax < 2500.0$

---

Name: *dmin*  
Table: **Attencoef**  
Description: Minimum distance for which the regional distance correction is applicable.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: kilometers  
Range:  $0.0 < dmin < 2500.0$

---

Name: *dnarr*  
Table: **Bull\_comp**  
Description: Absolute difference in the number of associated arrivals between corresponding origins.  
Format: number(8) External: i8  
NA Value: -1  
Range:  $dnarr \geq 0$

---

Name: *dndef*  
 Table: **Bull\_comp, Ex\_an**  
 Description: Difference in the number of defining phases between corresponding origins. A phase is defining only if its time-component is defining. The value is [*ndef* (analyst) – *ndef* (expert system)] for analyst versus expert system comparisons, and [*ndef* (bulletin1) – *ndef* (bulletin2)] for more general bulletin comparisons.  
 Format: number(8) External: i8  
 NA Value: –1  
 Range: *dndef* ≥ 0

---

Name: *dnorth*  
 Table: **Site**  
 Description: Distance north. This column gives the “northing,” or relative position of array element north of the array center specified by the value of *refsta* (see *deast*).  
 Format: float(24) External: f9.4  
 NA Value: 0.0  
 Units: kilometers  
 Range: –20,000.0 ≤ *dnorth* ≤ 20,000.0

---

Name: *dinsta*  
 Table: **Ex\_an**  
 Description: In a comparison of bulletins, *dinsta* is the difference in the number of contributing stations between the corresponding bulletin locations. The value is [*insta* (analyst) – *insta* (expert systems)] for analyst versus expert system comparisons, and [*insta* (bulletin1) – *insta* (bulletin2)] for more general bulletin comparisons.  
 Format: number(8) External: i8  
 NA Value: –999  
 Range: *dinsta* > –999

**▼ S/H/I Column Descriptions**

---

Name: *dom\_to\_send*  
Table: **Productcriteria**  
Description: Day of month to send product.  
Format: number(2) External: i2  
NA Value: -1  
Range:  $0 < \text{dom\_to\_send} \leq 31$

---

Name: *domain*  
Table: **Datauser, Subsuser**  
Description: Domain name for a *Subscription Subsystem* user.  
Format: varchar2(48) External: a48  
NA Value: - (hyphen)  
NOT ALLOWED for **datauser**  
Range: any string up to 48 characters that is a valid internet domain

---

Name: *donetime*  
Table: **Rebdone\_dataday\_flag**  
Description: Epoch time that REB was completed.  
Format: float(53) External: f17.5  
NA Value: NOT ALLOWED  
Range: any valid epoch time

---

Name: *dow\_to\_send*  
Table: **Productcriteria**  
Description: Day of week to deliver a product.  
Format: number(2) External: i2  
NA Value: -1  
Range:  $1 \leq \text{dow\_to\_send} \leq 7$

Name: *dprimp*  
 Table: **Ex\_an**  
 Description: In a comparison of bulletins, *dprimp* is the difference in the number of primary phases between corresponding origins. For a phase to be primary it must be time-defining, a member of the set {P, Pn, Pg, PKP, PKPdf}, and the first arrival at a particular station. The value is [(number-analyst-phases) – (number-expert-phase)] for analyst versus expert-system comparisons and [(number-bulletin1-phases) – (number-bulletin2-phases)] for more general bulletin comparisons.  
 Format: number(8) External: i8  
 NA Value: -999  
 Range: *dprimp* > -999

---

Name: *dropped*  
 Table: **Qcstats**  
 Description: Flag that indicates if the interval was dropped by DFX due to excessive masking.  
 Format: number(8) External: i8  
 NA Value: -1  
 Range: *dropped* ∈ {0, 1}

---

Name: *drsta*  
 Table: **Ex\_an**  
 Description: In a comparison of bulletins, *drsta* is the difference in the number of regional non-array stations contributing to corresponding bulletin origins. The value is [*rsta* (analyst) – *rsta* (expert system)] for analyst versus expert-system comparisons or [*rsta* (bulletin1) – *rsta* (bulletin2)] for more general bulletin comparisons.  
 Format: number(8) External: i8  
 NA Value: -999  
 Range: *drsta* > -999

**▼ S/H/I Column Descriptions**

---

Name: *dscore*  
Table: **Evsc\_prod**  
Description: Score for the depth event-screening criterion.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Range: *dscore* > -999.0

---

Name: *dsecondp*  
Table: **Ex\_an**  
Description: In a comparison of bulletins, *dsecondp* is the difference in the number of secondary phases between corresponding bulletin origins. For a phase to be secondary, it must be defining and cannot be a member of the phase set {P, Pn, Pg, PKP, PKPdf}. The value is [(number-analyst-phases) – (number-expert-phases)] for analyst versus expert-system comparisons, and [(number-bulletin1-phases) – (number-bulletin2-phases)] for more general bulletin comparisons.  
Format: number(8) External: i8  
NA Value: -999  
Range: *dsecondp* > -999

---

Name: *dsize*  
Table: **Fileproduct (Fs\_stageproduct)**  
Description: Size of data file in bytes.  
Format: number(10) External: i10  
NA Value: NOT ALLOWED  
Units: bytes  
Range: 0 < *dsize* < 99,999,999

---

Name: *dtime*  
Table: **Bull\_comp, Ex\_an**  
Description: Difference in the origin time between corresponding origins. The value is [*time* (analyst) – *time* (expert system)] for analyst versus expert-system comparisons, and [*time* (bulletin1) – *time* (bulletin2)] for more general bulletin comparisons.  
Format: float(24) External: f8.3  
NA Value: –999.0  
Units: seconds  
Range: *dtime* > –999.0

---

Name: *dtsta*  
Table: **Ex\_an**  
Description: Difference in the number of teleseismic stations (station/event distance > 2000 km) contributing to the analyst and expert system origins. The value is [*tsta* (analyst) – *tsta* (expert system)] for analyst versus expert-system comparisons, and [*tsta* (bulletin1) – *tsta* (bulletin2)] for more general bulletin comparisons.  
Format: number(8) External: i8  
NA Value: –999  
Range: *dtsta* > –999

## ▼ S/H/I Column Descriptions

---

Name:	<i>dtype</i>	
Table:	<b>Origin (Originref, Origin_temp_ga)</b>	
Description:	Depth determination flag. This single-character flag indicates the method by which the depth was determined or constrained during the location process. The recommended values are f (free), d (from depth phases), r (restrained by location program) or g (restrained by geophysicist). In cases r or g, either the <i>auth</i> column should indicate the agency or person responsible for this action, or the <i>commid</i> column should point to an explanation in the <b>Remark</b> table.	
Format:	varchar2(1)	External: a1
NA Value:	- (hyphen)	
Range:	<i>dtype</i> ∈ {f, d, r, g}	

---

Name:	<i>duration</i>	
Table:	<b>Amplitude</b>	
Description:	Total duration of amplitude window. Combined with <i>start_time</i> , the entire amplitude time window is specified. May also be employed to compute a coda duration magnitude if <i>amp</i> and <i>per</i> columns contain NA values.	
Format:	float(24)	External: f7.2
NA Value:	-999.0	
Units:	seconds	
Range:	<i>duration</i> ≥ 0	

---

Name:	<i>duration</i>
Table:	<b>Chan_groups</b>
Description:	Not used.
Format:	number
NA Value:	-1
Range:	none

---

Name: **eavcep**  
Table: **Timefreq**  
Description: Average maximum value in the two-dimensional cepstrum of the east component traces.  
Format: float(24) External: f7.2  
NA Value: NOT ALLOWED  
Range:  $eavcep \geq 0$

---

Name: **eavcor**  
Table: **Timefreq**  
Description: Average autocorrelation along the time axis across all frequencies excluding randomized points of the east component traces.  
Format: float(24) External: f7.2  
NA Value: NOT ALLOWED  
Range:  $eavcor \geq 0$

---

Name: **eavpct**  
Table: **Timefreq**  
Description: Average ratio of bad points to total of the east component traces.  
Format: float(24) External: f7.2  
NA Value: NOT ALLOWED  
Range:  $0 \leq eavpct \leq 1$

---

**▼ S/H/I Column Descriptions**

---

Name: *edepth*  
Table: **Sitechan**  
Description: Emplacement depth. This column gives the depth at which the instrument is positioned, relative to the value of *elev* in the **Site** table.  
Format: float(24) External: f9.4  
NA Value: NOT ALLOWED  
Units: kilometers  
Range:  $edepth \geq 0.0$

---

Name: *elev*  
Table: **Explo, Location, Site**  
Description: Surface elevation. This column is the elevation of the surface of the earth above a shot point (**explo**), mine / test site (**location**), or a seismic station (**site**) relative to mean sea level.  
Format: float(24) External: f9.4  
NA Value: -999.0  
Units: kilometers  
Range:  $-10.0 \leq elev \leq 10.0$

---

Name: *ema*  
Table: **Arrival**  
Description: Emergence angle. This column is the emergence angle of an arrival, as observed at a three-component station or array. The value increases from the vertical direction towards the horizontal.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Units: degrees  
Range:  $0.0 \leq ema \leq 90.0$

---

Name: *emaillimit*  
Table: **Datauser**  
Description: Maximum size of message that will be delivered via email in the *Message Sub-system*.  
Format: number(8) External: i8  
NA Value: -1  
Units: bytes  
Range: *emaillimit* ≥ 0

---

Name: *emailto*  
Table: **Msgdest**  
Description: Destination email address.  
Format: varchar2(64) External: a64  
NA Value: - (hyphen)  
Range: any string up to 64 characters

---

Name: *emares*  
Table: **Assoc (Assoc\_temp\_ga)**  
Description: Emergence angle residual. This column is the difference between an observed emergence angle and the theoretical prediction for the same phase, assuming an event location as specified by the accompanying *orid*.  
Format: float(24) External: f7.1  
NA Value: -999.0  
Units: degrees  
Range: -90.0 ≤ *emares* ≤ 90.0

**▼ S/H/I Column Descriptions**

---

Name: *end\_date*  
Table: **Participation**  
Description: Date a station was discontinued from a network.  
Format: number(8) External: i8  
NA Value: -1  
Range: any valid Julian date where *end\_date* > *begin\_date* (yyyyddd)

---

Name: *end\_time*  
Table: **Request**  
Description: Ending time of comparison or processing.  
Format: float(53) External: f17.5  
NA Value: NOT ALLOWED  
Units: seconds  
Range: any valid epoch time

---

Name: *endtime*  
Table: **Beamaux, Datadays, Fileproduct (Fs\_stageproduct), Fwgap, Interval, Outage, Problem, Qcstats, Sensor, Wfdisc (Wfproto)**  
Description: Epoch time. Epochal time is given as seconds and fractions of a second since hour 0 January 1, 1970, and is stored in a double-precision floating number. This represents the ending time of the last gap for the *sta/chan* pair.  
Format: float(53) External: f17.5  
number(17,5) for **problem**  
NA Value: +9999999999.999  
Units: seconds  
Range: *endtime* < +9999999999.999

---

Name: *eng\_deldur*  
Table: **Infra\_features**  
Description: Estimated standard deviation in *eng\_dur*.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Units: seconds  
Range: *eng\_deldur* > 0.0

---

Name: *eng\_dur*  
Table: **Infra\_features**  
Description: Time period during which the STA/LTA on the traditional beam exceeded its threshold for the current time interval.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: seconds  
Range: *eng\_dur* > 0.0

---

Name: *eng\_time*  
Table: **Infra\_features**  
Description: Earliest time at which the STA/LTA applied to the traditional beam exceeded its threshold for the current time interval.  
Format: float(53) External: f17.5  
NA Value: -9999999999.999  
Units: seconds  
Range: *eng\_time* > -9999999999.999

**▼ S/H/I Column Descriptions**

---

Name: **eorid**  
Table: **Ex\_an**  
Description: Expert system origin identifier in an expert system versus analyst origin comparison.  
Format: number(8) External: i8  
NA Value: -1  
Range:  $\text{eorid} > 0$

---

Name: **epfixf**  
Table: **Origaux**  
Description: Flag designating that an epicenter is fixed.  
Format: varchar2(1) External: a1  
NA Value: - (hyphen)  
Range: any alphabetic lower-case character

---

Name: **esaz**  
Table: **Assoc (Assoc\_temp\_ga)**  
Description: Event-to-station azimuth measured in degrees clockwise from North.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: degrees  
Range:  $0.0 \leq \text{esaz} \leq 360.0$

---

Name: **etypc**  
Table: **Origin (Originref, Origin\_temp\_ga), Stassoc**  
Description: Event type. Describes the type of event.  
Format: varchar2(7) External: a7  
NA Value: - (hyphen)  
Range:  $\text{etypc} \in \{\text{QUAKE}, \text{BLAST}, \text{EXPL}, \text{IND}\}$

---

Name: *event*  
Table: **Origaux**  
Description: Unique event identification (string).  
Format: varchar2(8) External: a8  
NA Value: – (hyphen)  
Range: any string up to eight characters

---

Name: *evid*  
Table: **Discard, Event, Event\_control (In\_event\_control), Explo, Netmag, Origaux, Origin (Originref, Origin\_temp\_ga), Parrival, Request, Stamag**  
Description: Event identifier. Each event is assigned a unique positive integer that identifies it in a database. Several records in the **origin** table can have the same *evid*. Analyst have several opinions about the location of the event.  
Format: number(8) External: i8  
NA Value: –1  
NOT ALLOWED for **event**  
Range: *evid* > 0

---

Name: *evname*  
Table: **Event**  
Description: Event name. This is the common name of the event identified by *evid*.  
Format: varchar2(15) External: a15  
NA Value: – (hyphen)  
Range: any free-format string up to 15 characters

## ▼ S/H/I Column Descriptions

Name: expcode

## Table: Exploratory

Description:      Explosion type code.

A four-character code indicates the type and setting of the explosion as follows:

Character 1: Type of explosion. N = nuclear; C = chemical

Character 2: Medium. A = air; W = water; U = underground

Character 3: Confidence. C = confirmed; P = presumed

Character 4: Country. U = U.S.; S = USSR; F = France; C = China; I = India; G = Great Britain; P = Pakistan.

A five-character code is the same as the four-character code, except that a second Country character is added when a second country is involved.

A ten-character code indicates multiple shots (for example, NUCS SALVO).

A “-” is used for “unknown.”

Format: varchar2(10) External: a10

NA Value: - (hyphen)

Range: upper case string up to 10 characters long

Name: *exptype*

Table: Exploratory

Description: Explosion type.

"Air", "Airburst", "Airdrop", "Balloon", "Barge", "Rocket", "Space", "Surface", or "Tower" for air explosions.

"Tunnel", "Shaft", or "Crater" for underground explosions.

"Underwater", or "Water Surface" for water explosions.

Format: varchar2(15)

External: a15

NA Value: - (hyphen)

Range: any string up to

6. *What is the best way to increase sales?*

---

Name: *ext\_chan*  
Table: **Exception\_chanmap, Std\_chanmap**  
Description: External channel identifier. The name of the channel as supplied by the data provider and received by data acquisition software.  
Format: varchar2(8) External: a8  
NA Value: NOT ALLOWED  
Range: any string up to eight characters

---

Name: *extern\_auth*  
Table: **Channame**  
Description: The external authority using the station name. Not used for translation.  
Format: varchar2(20) External: a20  
NA Value: – (hyphen)  
Range: any string up to 20 characters

---

Name: *extern\_chan*  
Table: **Channame**  
Description: The name of the channel as supplied in the data format frame of the CD-1 protocol. The name is chosen by the data provider. Along with *extern\_stn*, a primary key.  
Format: varchar2(8) External: a8  
NA Value: NOT ALLOWED  
Range: any string up to eight characters

**▼ S/H/I Column Descriptions**

---

Name: *extern\_stn*  
Table: **Channame**  
Description: The name of the station as supplied in data format frame of the CD-1 protocol. The name is chosen by the data provider. Along with *extern\_chan*, a primary key.  
Format: varchar2(6) External: a6  
NA Value: NOT ALLOWED  
Range: any upper-case string up to six characters

---

Name: *extmsgid*  
Table: **Msgdisc**  
Description: Value of the *msgid* column in a message that is received by the message system.  
Format: varchar2(20) External: a20  
NA Value: -1  
Range: any string up to 20 characters

---

Name: *fileoff*  
Table: **Msgdisc**  
Description: Number of bytes to the first character of the email file (first character of the email header). *fileoff* will always be 0 on the operations system, but will be reset when archived.  
Format: number(10) External: i10  
NA Value: -1  
Units: bytes  
Range: *fileoff* > 0

---

Name: *filesize*  
 Table: **Msgdisc**  
 Description: Size of file.  
 Format: number(10) External: i10  
 NA Value: -1  
 Units: bytes  
 Range: *fileoff* > 0

---

Name: *fkid*  
 Table: **Fkdisc**  
 Description: Uniquely identifies a f-k spectrum file.  
 Format: number(8) External: i8  
 NA Value: NOT ALLOWED  
 Range: *fkid* > 0

---

Name: *fkqual*  
 Table: **Detection**  
 Description: An integer quantifying the quality of the f-k spectrum. An *fkqual* = 1 is high quality; an *fkqual* = 4 is low quality.  
 Format: number(4) External: i4  
 NA Value: -1  
 Range:  $1 \leq fkqual \leq 4$

---

Name: *fkrid*  
 Table: **Fkdisc**  
 Description: Uniquely defines a f-k spectrum recipe.  
 Format: number(8) External: i8  
 NA Value: -1  
 Range: *fkrid* > 0

---

**▼ S/H/I Column Descriptions**

---

Name: *fktyp*  
Table: **Fkdisc**  
Description: String that identifies the type of f-k spectrum; examples are monochromatic (*mono*) and broadband (*broa*).  
Format: varchar2(4) External: a4  
NA Value: NOT ALLOWED  
Range: any lower-case string up to four characters

---

Name: *fm*  
Table: **Arrival**  
Description: First motion. This is a two-character indication of first motion. The first character describes first motion seen on short-period channels and the second holds for long-period instruments. Compression on a short-period sensor is denoted by *c*, dilatation by *a*; and compression on a long-period sensor is denoted by *u*, dilatation by an *r*. Empty character positions will be indicated by dots (for example, ".*r*" for dilatation on a long-period sensor).  
Format: varchar2(2) External: a2  
NA Value: – (hyphen)  
Range: all two-letter permutations of {*c* | *d* | .}, {*u* | *r* | .}

---

Name: *fmax*  
Table: **Spvar**  
Description: Maximum frequency of a band with *snr* > 3 dB used for the spectral variance calculation.  
Format: float(24) External: f7.2  
NA Value: NOT ALLOWED  
Units: Hertz  
Range: *fmax* > *fmin*

---

Name: *fmin*  
 Table: **Svar**  
 Description: Minimum frequency of a band with *snr* > 3 dB used for the spectral variance calculation.  
 Format: float(24) External: f7.2  
 NA Value: NOT ALLOWED  
 Units: Hertz  
 Range:  $0 < fmin < fmax$

---

Name: *foff*  
 Table: **Fileproduct (Fs\_stageproduct), Fkdisc, Fsave, Fsdisc, Msgdatatype, Msgdisc, Wfdisc (Wfproto)**  
 Description: File offset; the byte offset of a data segment within a physical data file. This column is nonzero if the data reference does not occur at the beginning of the file.  
 Format: number(8) External: i10  
 number(10) for **fileproduct, fkdisc, fsave, fsdisc, msgdisc**  
 NA Value: NOT ALLOWED  
 Range:  $foff \geq 0$

---

Name: *ford*  
 Table: **Hydro\_features, Infra\_features**  
 Description: Filter order. In **infra\_features**, this column identifies the order of the Infinite Impulse Response (IIR) filter used to extract the spectral band in which the standard fk spectrum calculation was performed.  
 Format: number(8) External: i8  
 NA Value: 0  
 Range:  $ford > 0$

**▼ S/H/I Column Descriptions**

---

Name: *forid*  
Table: **Ex\_an**  
Description: Final origin identifier; the origin identification of the analyst *orid* in an expert system versus analyst origin comparison.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *forid* > 0

---

Name: *forwardport*  
Table: **Dlman**  
Description: Forwarder port used by the diskloop manager.  
Format: number(6) External: i6  
NA Value: 0  
Range:  $1 \leq \text{forwardport} \leq 16383$

---

Name: *fpid*  
Table: **Fileproduct (Fs\_stageproduct)**  
Description: File product identifier.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *fpid* > 0

---

Name: *framesize*  
Table: **Fwgap**  
Description: Time that each data frame represents. This column is determined from the Data Format Frame of the Alpha Protocol.  
Format: float(53) External: f17.5  
NA Value: -1.0  
Range: *framesize* > 0 . 0

---

Name: *freq*  
Table: **Apma**  
Description: Center frequency of the wideband polarization analysis. For example, if only the 2 – 4 Hz and 4 – 8 Hz bands satisfy the signal-to-noise ratio criterion, then *freq* is set to 5.0 Hz.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Units: Hertz  
Range: *freq* > 0.0

---

Name: *fsdesc*  
Table: **Fsrecipe**  
Description: String describing the Fourier spectrum recipe.  
Format: varchar2(15) External: a15  
NA Value: - (hyphen)  
Range: any string up to 15 characters

---

Name: *fsid*  
Table: **Fsdisc, Fstags, Spvar**  
Description: Fourier spectrum identifier.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
-1 for **spvar**  
Range: *fsid* > 0

**▼ S/H/I Column Descriptions**

---

Name: *fsrid*  
Table: **Fsdisc, Fsrecipe**  
Description: Fourier spectrum recipe identifier.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *fsrid* > 0

---

Name: *fstat*  
Table: **Detection**  
Description: F-statistic; a measure of the signal-to-noise ratio at the peak in the f-k spectrum.  
Format: float(24) External: f5.2  
NA Value: -1.0  
Range: *fstat* ≥ 0

---

Name: *fstype*  
Table: **Fsave, Fsdisc**  
Description: String specifying the type of Fourier spectrum; for example, amplitude (amp1), phase (phas), complex (comp), and power (powe).  
Format: varchar2(4) External: a4  
NA Value: NOT ALLOWED  
Range: any lower-case string up to four characters

---

Name: *ftp\_address*  
Table: **Ftpfailed, Ftlogin**  
Description: FTP address of site from which PIDC is attempting to transfer data message.  
Format: varchar2(64) External: a64  
NA Value: NOT ALLOWED  
Range: any string up to 64 characters

---

Name: *ftype*  
 Table: **Hydro\_features**  
 Description: Filter type. This indicates the type of filtering that was performed for a Butterworth filter. "BP" indicates a band-pass filter between *low\_cut* and *high\_cut*; "LP" indicates a low-pass filter below *high\_cut*; "HP" indicates a high-pass filter above *low\_cut*; "BR" indicates a band-reject filter outside *low\_cut* and *high\_cut*.  
 Format: varchar2(2) External: a2  
 NA Value: – (hyphen)  
 Range: *ftype* ∈ {BP, LP, HP, BR}

---

Name: *full*  
 Table: **Dlfile**  
 Description: File is full (y/n). *full* is set to "y" if the diskloop file is full and "n" otherwise.  
 Format: varchar2(1) External: a1  
 NA Value: – (hyphen)  
 Range: *full* ∈ {n,y}

---

Name: *fwid*  
 Table: **Fwfile**  
 Description: Identifier of the *AlphaForward* process that reads from the heap file.  
 Format: number(8) External: i8  
 NA Value: –1  
 Range: *fwid* > 0

**▼ S/H/I Column Descriptions**

---

Name: *fwgid*  
Table: **Fwgap**  
Description: Forwarding gap identifier. This identifier is placed into a newly inserted gap record. The value for the counter is retrieved by *gdi\_get\_counter*.  
Format: number(8) External: i8  
NA Value: -1  
Range: *fwgid* > -1

---

Name: *fwhid*  
Table: **Fwfile**  
Description: Identifier of the *AlphaDLHeap* process that writes to the heap file.  
Format: number(8) External: i8  
NA Value: -1  
Range: *fwhid* > 0

---

Name: *fzp*  
Table: **Hydro\_features**  
Description: Filter causality. This flag indicates zero-phase filtering. If it is 1, the filter is zero-phase (noncausal); if it is 0, the filter is not zero-phase (causal).  
Format: number(8) External: i1  
NA Value: NOT ALLOWED  
Range: *fzp* ∈ {0,1}

---

Name: *gap*  
Table: **Origaux**  
Description: Gap in azimuthal coverage.  
Format: number(4) External: i3  
NA Value: -1  
Units: degrees  
Range:  $0 \leq gap \leq 360$

---

Name: *gctp1* through *gctp15*  
Table: **Mapdisc**  
Description: General cartographic transformation package variable. The default for all values is 0.  
Format: float(24) External: f10.4  
NA Value: NOT ALLOWED  
Range: see *mapdisc* man page

---

Name: *grdname*  
Table: **Seisgrid (Dseisgrid), Seisindex (Dseisindex)**  
Description: Name for identifying the basis of a natural seismicity grid.  
Format: varchar2(6) External: a6  
NA Value: NOT ALLOWED  
Range: any free-format string up to six characters

**▼ S/H/I Column Descriptions**

---

Name: *grn*  
Table: **Ev\_summary (Ex\_summary, An\_summary), Gregion, Origin (Originref, Origin\_temp\_ga)**  
Description: Geographic region number, as defined by [Fli74].  
Format: number(8) External: i8  
NA Value: -1  
Range: *grn* > 0

---

Name: *grname*  
Table: **Gregion**  
Description: Geographic region name. This column is the common name of a geographic region, as given in [Fli74]. Names may have changed due to changing political circumstances (for example, old RHODESIA = new ZIMBABWE) (see *grn* and *sname*).  
Format: varchar2(40) External: a40  
NA Value: NOT ALLOWED  
Range: any upper-case string up to 40 characters

---

Name: *grpname*  
Table: **Producttypevsc**  
Description: Group name for subscriptions.  
Format: varchar2(24) External: a24  
NA Value: - (hyphen)  
Range: any valid string up to 24 characters

---

Name: *gvhi*  
 Table: **Ampdescript**  
 Description: High group velocity for determining a time window. This column defines the start time of an amplitude measurement window if *toff* is null. If *gvhi* is used, then *gvlo* must be used to define the end time of the window.  
 Format: float(24) External: f5.2  
 NA Value: -999.0  
 Units: kilometers/second  
 Range: *gvhi* > *gvlo*

---

Name: *gvlo*  
 Table: **Ampdescript**  
 Description: Low group velocity for determining a time window. This column defines the end time of an amplitude measurement window if *tlen* is null or if *gvhi* is used to define the start time of the window.  
 Format: float(24) External: f5.2  
 NA Value: -999.0  
 Units: kilometers/second  
 Range: *gvlo* > 0

---

Name: *hamp*  
 Table: **Amp3c**  
 Description: Horizontal amplitude. Absolute maximum amplitude (nm) measured on the root of the sum of the squares of two horizontally-oriented components filtered in a frequency band centered at *cfreq* Hz.  
 Format: float(24) External: f11.2  
 NA Value: -999.0  
 Units: nanometers  
 Range: *hamp* ≥ 0.0

**▼ S/H/I Column Descriptions**

---

Name: *hang*  
Table: **Sitechan**  
Description: Horizontal orientation of seismometer. This column specifies the orientation of the seismometer in the horizontal plane, measured clockwise from North. For a North-South orientation with the seismometer pointing toward the north, *hang* = 0.0; for East-West orientation with the seismometer pointing toward the west, *hang* = 270.0 (see *vang*).  
Format: float(24) External: f6.1  
NA Value: NOT ALLOWED  
Units: degrees  
Range: 0.0 ≤ *hang* ≤ 360.0

---

Name: *header\_fpid*  
Table: **Fpdescription**  
Description: *fpid* pointing to the header row for this product type.  
Format: number(8) External: i8  
NA Value: -1  
Range: *header\_fpid* > 0

---

Name: *high\_cut*  
Table: **Hydro\_features**  
Description: High-cut frequency of filter.  
Format: float(24) External: f9.4  
NA Value: -1.0  
Units: Hertz  
Range: 0.0 ≤ *high\_cut* ≤ sample rate/2

Name: *hmxmin*  
 Table: **Apma**  
 Description: Maximum-to-minimum horizontal amplitude ratio defined as  $(\lambda_1/\lambda_2)^{1/2}$  where  $\lambda_1$  and  $\lambda_2$  are the maximum and minimum eigenvalues obtained by solving the 2-D eigensystem using only the horizontal components. This S-type value is calculated at the time of maximum 3-component amplitude.  
 Format: float(24) External: f7.2  
 NA Value: -1.0  
 Range:  $hmxmin \geq 0.0$

---

Name: *hour*  
 Table: **Allocate\_hour**  
 Description: Starting hour of a time block for interactive analysis.  
 Format: number(2) External: i2  
 NA Value: NOT ALLOWED  
 Units: hours  
 Range:  $0 \leq hour \leq 23$

---

Name: *hour\_to\_send*  
 Table: **Productcriteria**  
 Description: Hour at which the product is to be sent.  
 Format: number(2) External: i2  
 NA Value: NOT ALLOWED  
 Units: hours  
 Range:  $0 \leq hours\_to\_send \leq 23$

**▼ S/H/I Column Descriptions**

---

Name: *hscore*  
Table: **Evsc\_prod**  
Description: Score for the hydroacoustic event-screening criterion.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Range: *hscore* > -999.0

---

Name: *hsnr*  
Table: **Amp3c**  
Description: Horizontal signal-to-noise ratio. Ratio of *hamp* to the root-mean-square amplitude of the root of the sum of the squares of two horizontally-oriented components filtered in a frequency band centered at *cfreq* Hz.  
Format: float(24) External: f10.2  
NA Value: -999.0  
Range: *hsnr* ≥ 0.0

---

Name: *htov*  
Table: **Amp3c**  
Description: Horizontal-to-vertical power ratio. One-half times the square of the ratio of *hamp* to *vamp*.  
Format: float(24) External: f10.2  
NA Value: -999.0  
Range: *htov* ≥ 0.0

Name: *hvrat*  
 Table: **Apma**  
 Description: Horizontal-to-vertical power ratio defined as

$$(C_3 + C_2)/2C_1$$

where  $C_1$ ,  $C_2$ , and  $C_3$  are the diagonal elements of the covariance matrix ( $C_1$  corresponds to the vertical component). This is an S-phase-type value that is calculated at the time of the maximum 3-component amplitude.

Format: float(24) External: f7.2  
 NA Value: -1.0  
 Range:  $hvrat \geq 0.0$

---

Name: *hvratp*  
 Table: **Apma**  
 Description: Horizontal-to-vertical power ratio defined as

$$(C_3 + C_2)/2C_1$$

where  $C_1$ ,  $C_2$ , and  $C_3$  are the diagonal elements of the covariance matrix ( $C_1$  corresponds to the vertical component). This is a P-phase-type value that is calculated at the time of maximum rectilinearity.

Format: float(24) External: f7.2  
 NA Value: -1.0  
 Range:  $hvratp \geq 0.0$

**▼ S/H/I Column Descriptions**

---

Name: *hydro\_cp\_thresh*  
Table: **Producttypevsc**  
Description: Threshold of the hydroacoustic cepstral peak screening criterion.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: dB re  $\mu$ Pa  
Range:  $0.0 < \text{hydro\_cp\_thresh} < 999.0$

---

Name: *hyd\_grp\_phase*  
Table: **Hydro\_arr\_group**  
Description: Flag that indicates if the interval was dropped by *DFX* due to excessive masking.  
Format: varchar2(8) External: a8  
NA Value: - (hyphen)  
Range: any string up to eight characters; currently *hyd\_grp\_phase*  $\in \{\text{H, T, N}\}$

---

Name: *hydro\_id*  
Table: **Hydro\_arr\_group, Hydro\_assoc**  
Description: Identifier which is the primary key in the **hydro\_arr\_group** table and the foreign key in **hydro\_assoc**.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range:  $\text{hydro\_id} > 0$

---

Name: *hydro\_te\_thresh*  
Table: **Productypeevsc**  
Description: Threshold of the hydroacoustic total energy screening criterion.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: dB re  $\mu$ Pa  
Range:  $0.0 < \text{hydro\_te\_thresh} < 999.0$

---

Name: *icell*  
Table: **Seisgrid (Dseisgrid)**  
Description: Grid cell index.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range:  $\text{icell} > 0$

---

Name: *id*  
Table: **Ga\_tag**  
Description: Arrival or origin identifier.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range:  $\text{id} > 0$

---

Name: *ideate*  
Table: **Msgdisc**  
Description: Initial Julian date message that was received.  
Format: number(8) External: i8  
NA Value: -1  
Range: any valid Julian date

---

**▼ S/H/I Column Descriptions**

---

Name: *ident*  
Table: **Origaux**  
Description: Identifier assigned to an origin by an external source in an incoming origin data message.  
Format: varchar2(8) External: a8  
NA Value: – (hyphen)  
Range: any string up to eight characters

---

Name: *imb*  
Table: **Stassoc**  
Description: Initial body wave magnitude. This column is an analyst's estimate of the body wave magnitude using data from a single station (see *iml*, *ims*, *magnitude*, *magtype*, *mb*, *ml*, and *ms*).  
Format: float(24) External: f7.2  
NA Value: –999 .0  
Range: *imb* > –2 .0

---

Name: *imethod*  
Table: **Msgdisc**  
Description: Method of transmission for a message.  
Format: varchar2(8) External: a8  
NA Value: – (hyphen)  
Range: *imethod* ∈ {email, ftp}

Name: *iml*  
 Table: **Stassoc**  
 Description: Initial local magnitude. This column is an analyst's estimate of the local using data from a single station (see *imb*, *ims*, *magnitude*, *magtype*, *mb*, *ml*, and *ms*).  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Range: *iml* > -2.0

---

Name: *ims*  
 Table: **Stassoc**  
 Description: Initial surface wave magnitude. The value in this column is an analyst's estimate of surface wave magnitude using data from a single station (see *iml*, *imb*, *magnitude*, *magtype*, *mb*, *ml*, and *ms*).  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Range: *ims* > -2.0

---

Name: *inang1*  
 Table: **Apma**  
 Description: Apparent incidence angle (measured from the vertical) of the eigenvector ( $e_1$ ) associated with the largest eigenvalue ( $\lambda_1$ ). This column is also called the long-axis incidence angle or the emergence angle. This P-type value is calculated at the time of maximum rectilinearity.  
 Format: float(24) External: f7.2  
 NA Value: -1.0  
 Units: degrees  
 Range:  $0.0 \leq inang1 < 90.0$

## ▼ S/H/I Column Descriptions

---

Name: *inang3*  
Table: **Apma**  
Description: Apparent incidence angle (measured from the vertical) of the eigenvector ( $e_3$ ) associated with the smallest eigenvalue ( $\lambda_3$ ). This column is also called the short-axis incidence angle. This S-type value is measured at the time of the maximum 3-component amplitude.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Units: degrees  
Range:  $0.0 \leq inang3 < 90.0$

---

Name: *inarrival*  
Table: **Amplitude**  
Description: Flag to indicate whether or not *amp* is the same as it is in the **Arrival** table.  
Format: varchar2(1) External: a1  
NA Value: NOT ALLOWED  
Range: *inarrival* ∈ {y, n}

---

Name: *inauth*  
Table: **Wfconv**  
Description: Flag showing if input data are authenticated.  
Format: varchar2 (1) External: a1  
NA Value: - (hyphen)  
Range: *inauth* ∈ {y, n}

---

Name: *incomp*  
 Table: **Wfconv**  
 Description: Input data compression type. The only type currently supported is Canadian compression (CA).  
 Format: varchar2(2) External: a2  
 NA Value: – (hyphen)  
 Range: *incomp* ∈ {CA}

---

Name: *inid*  
 Table: **Instrument, Sensor**  
 Description: Instrument identifier. This column is a unique key to the **instrument** table and *inid* provides the only link between **sensor** and **instrument**.  
 Format: number(8) External: i8  
 NA Value: NOT ALLOWED  
 –1 for **sensor**.  
 Range: *inid* > 0

---

Name: *initialdate*  
 Table: **Subs**  
 Description: Initial date of a subscription.  
 Format: date External: a17  
 NA Value: NOT ALLOWED  
 Range: any valid ORACLE date

---

Name: *inloop*  
 Table: **Dlfile**  
 Description: File is part of a diskloop (y/n).  
 Format: varchar2(1) External: a1  
 NA Value: NOT ALLOWED  
 Range: *inloop* ∈ {n, y}

**▼ S/H/I Column Descriptions**

---

Name: *insamp*  
Table: **Wfconv**  
Description: Number of input samples per packet.  
Format: number(8) External: i8  
NA Value: 0  
Range: *insamp* > 0

---

Name: *insname*  
Table: **Instrument**  
Description: Instrument name. This character string contains the name of the instrument.  
Format: varchar2(50) External: a50  
NA Value: – (hyphen)  
Range: any free-format string up to 50 characters

---

Name: *instant*  
Table: **Sensor**  
Description: Snapshot indicator. When *instant* = y, the snapshot was taken at the time of a discrete procedural change, such as an adjustment of the instrument gain; when *instant* = n, the snapshot is of a continuously changing process, such as calibration drift. This value is important for tracking time corrections and calibrations. The default value is y.  
Format: varchar2(1) External: a1  
NA Value: NOT ALLOWED  
Range: *instant* ∈ {y, n}

---

Name: *instype*  
Table: **Instrument, Wfdisc (Wfproto)**  
Description: Instrument type. This character string is used to indicate the instrument type. Some examples are: SRO, ASRO, DWWSSN, LRSM, and S-750.  
Format: varchar2(6) External: a6  
NA Value: - (hyphen)  
Range: upper-case instrument type

---

Name: *int\_chan*  
Table: **Exception\_chanmap, Std\_chanmap**  
Description: Internal channel identifier. The name of a channel that was historically stored in the archive database.  
Format: varchar2(8) External: a8  
NA Value: NOT ALLOWED  
Range: any string up to eight characters

---

Name: *intern\_chan*  
Table: **Channame**  
Description: The name of the channel as chosen by the data consumer. The translation is from *extern\_chan* to *intern\_chan*.  
Format: varchar2(8) External: a8  
NA Value: NOT ALLOWED  
Range: any lower-case string up to eight characters

**▼ S/H/I Column Descriptions**

---

Name: *intern\_chanid*  
Table: **Channame**  
Description: The chanid corresponding to the *intern\_sto*, *intern\_chan*. Foreign key into the **Sitechan** table.  
Format: number(8) External: i8  
NA Value: -1  
Range: *intern\_chanid* > 0

---

Name: *intern\_sta*  
Table: **Channame**  
Description: The name of the station as chosen by the data consumer. The translation is from *extern\_sta* to *intern\_sta*.  
Format: varchar2(6) External: a6  
NA Value: NOT ALLOWED  
Range: any upper-case string up to six characters

---

Name: *intid*  
Table: **Msgdisc, Subs**  
Description: Internal identifier for message tracking.  
Format: number(8) External: i8  
NA Value: -1  
Range: *intid* > 0

---

Name: *intidtype*  
Table: **Msgdisc, Subs**  
Description: Identifier type for the *intid*.  
Format: varchar2(16) External: a16  
NA Value: - (hyphen)  
Range: any valid identifier in the schema

---

Name: *intvlid*  
Table: **Interval**  
Description: Interval identifier. Each interval is assigned a unique positive integer that identifies it in the database.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *intvlid* > 0

---

Name: *intype*  
Table: **Wfconv**  
Description: Input fixed width datatype.  
Format: varchar2(2) External: a2  
NA Value: – (hyphen)  
Range: same as *datatype*

---

Name: *inwfactivity*  
Table: **Chan\_groups**  
Description: Not used.  
Format: number(1)  
NA Value: –1  
Range: none

**▼ S/H/I Column Descriptions**

---

Name: *iphase*  
Table: **Arrival**  
Description: Reported phase. This eight-character column holds the name initially given to a seismic phase. Standard seismological labels for the types of signals (or phases) are used (for example, P, PKP, PcP, pP). Both upper- and lower-case letters are available and should be used when appropriate, for example, pP or PcP (see *phase*).  
Format: varchar2(8) External: a8  
NA Value: – (hyphen)  
Range: any string up to eight characters that conforms to seismological practice

---

Name: *isrc*  
Table: **Msgdisc**  
Description: Initial source of message.  
Format: varchar2(64) External: a64  
NA Value: – (hyphen)  
Range: any string up to 64 characters

---

Name: *itime*  
Table: **Msgdest, Msgdisc**  
Description: Initial time when message was received.  
Format: float(53) External: f17.5  
NA Value: –9999999999.999  
Units: seconds  
Range: any valid epoch time

---

Name: *jdate*

Table: **Allocate\_hour, Arrival, Datadays, Detection, Fkdisc, Fsdisc, Origin (Originref, Origin\_temp\_ga), Qcstats, Scan\_date, Sensor, Wfdisc (Wfproto)**

Description: Julian date; date of an arrival, origin, seismic recording, and so on. The same information is available in epoch time, but the Julian date format is more convenient for many types of searches. Dates B.C. are negative. The year will never equal 0000, and the day will never equal 000. Where only the year is known, the day of the year is 001; where only year and month are known, the day of year is the first day of the month. Only the year is negated for B.C., so 1 January of 10 B.C. is –0010001 (see *time*).

Format: number(8) External: i8

NA Value: –1

Range: Julian dates are of the form *yyyyddd*; must be consistent with the accompanying *time* column

---

Name: *kbscause*

Table: **Ex\_an**

Description: Obsolete column.

Format: varchar2(7) External: a7

NA Value: – (hyphen)

Range: any free-format string up to seven characters

---

Name: *keyname*

Table: **Lastid (Problastid, Rms\_lastid)**

Description: Identifier type. This column contains the actual name of a key whose last assigned numeric value is saved in *keyvalue*.

Format: varchar2(15) External: a15

NA Value: NOT ALLOWED

Range: *keyname* ∈ {arid, chanid, commid, evid, inid, orid, stassid, wfid, dataid, prodid, subsid, and so on}

**▼ S/H/I Column Descriptions**

---

Name: *keyvalue*  
Table: **Lastid (Problastid, Rms\_lastid)**  
Description: Current identifier value. This column maintains the last assigned value (a positive integer) of the counter for the specified *keyname*. The *keyvalue* is the last counter value used for the column *keyname*. Key values are maintained in the database to ensure uniqueness.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *keyvalue* > 0

---

Name: *kurtosis*  
Table: **Hydro\_features**  
Description: Kurtosis of the estimated signal energy between *onset\_time* and *termination\_time*.  
Format: float(24) External: f9.4  
NA Value: -9999999999.999  
Range: -10000000.0 < *kurtosis* < 10000000.0

---

Name: *label*  
Table: **Mapdisc**  
Description: Header for *Map* listing. A label, such as *world*, categorizes each *Map*. *Label* is used to build a sorted list of maps in the *Map* program.  
Format: varchar2(65) External: a65  
NA Value: - (hyphen)  
Range: any string up to 65 characters

---

Name: *last\_mig\_date*  
Table: **Mig\_date**  
Description: Last date of database migration.  
Format: date External: a17  
NA Value: NOT ALLOWED  
Range: any valid ORACLE date

---

Name: *lastfailedtime*  
Table: **Ftpfailed**  
Description: Time of most recent attempt to retrieve data message by FTP.  
Format: float(53) External: f17.5  
NA Value: NOT ALLOWED  
Range: any valid epoch time

---

Name: *lat*  
Table: **Location, Mappoint, Origin (Originref, Origin\_temp\_ga), Ref\_loc, Site, Stassoc**  
Description: Geographic latitude. Locations north of the equator have positive latitudes.  
Format: float(24) External: f9.4  
NA Value: -999.0  
Units: degrees  
Range:  $-90.0 \leq lat \leq 90.0$

**▼ S/H/I Column Descriptions**

---

Name: *lat1*  
Table: **Seisindex (Dseisindex)**  
Description: Southern-most latitude of the first grid cell in **Seisgrid (Dseisgrid)**.  
Format: float(24) External: f9.4  
NA Value: NOT ALLOWED  
Units: degrees  
Range:  $-90.0 \leq lat1 \leq 90.0$

---

Name: *latmajor*  
Table: **Mapdisc**  
Description: Latitude interval for displaying major grid lines in the *Map* application.  
Format: float(24) External: f9.4  
NA Value:  $-999.0$   
Units: degrees  
Range:  $0.0 < latmajor < 90.0$

---

Name: *latminor*  
Table: **Mapdisc**  
Description: Latitude interval for displaying minor grid lines in the *Map* application.  
Format: float(24) External: f9.4  
NA Value:  $-999.0$   
Units: degrees  
Range:  $0 < latminor < 90.0$

---

Name: *latorigradians*  
 Table: **Mapdisc**  
 Description: Latitude origin radians. Coordinates in radians of the lower left corner in the *Map* application. The *Map* application uses this for mercator projections only.  
 Format: float(24) External: f9.4  
 NA Value: -999.0  
 Units: radians  
 Range:  $-\pi/2 < \text{latorigradians} < \pi/2$

---

Name: *lddate*  
 Table: **Affiliation** (*Stanet*), **Allocate\_hour**, **Allow\_resid**, **Alphasite**, **Amp3c**, **Ampdescript**, **Amplitude**, **Apma**, **Arch\_data\_type**, **Arrival**, **Assoc** (**Assoc\_temp\_ga**), **Attencoef**, **Bull\_comp**, **Ceppks**, **Chan\_groups**, **Channame**, **Colordisc**, **Complexity**, **Datadays**, **Dataready**, **Datauser**, **Detection**, **Discard**, **Dlfile**, **Dlman**, **Ev\_summary** (*Ex\_summary*, *An\_summary*), **Event**, **Event\_control** (*In\_event\_control*), **Evsc\_hydro**, **Evsc\_prod**, **EvscRegional**, **Ex\_an**, **Exception\_chanmap**, **Expl0**, **Fileproduct** (*Fs\_stageproduct*), **Fkdisc**, **Fpdescription**, **Fsave**, **Fsdisc**, **Fsrecipe**, **Fstag**, **Ftpfailed**, **Ftplogin**, **Fwfile**, **Fwgap**, **Fwsite**, **Glossary**, **Gregion**, **Hydro\_arr\_group**, **Hydro\_assoc**, **Hydro\_features**, **Infra\_features**, **Instrument**, **Interval**, **Lastid** (*Problastid*, *Rms\_lastid*), **Mapcolor**, **Mapdisc**, **Mapover**, **Mappoint**, **Mig\_date**, **Location**, **Msgaux**, **Msgdatatype**, **Msgdest**, **Msgdisc**, **Netmag**, **Network**, **Origaux**, **Origerr** (*Origerr\_temp\_ga*), **Origin** (*Originref*, *Origin\_temp\_ga*), **Outage**, **Overlaydisc**, **Parrival**, **Participation**, **Problem**, **Problemlog**, **Problemmail**, **Prodtrack**, **Productcriteria**, **Producttypeevsc**, **Rebdone\_dataday\_flag**, **Ref\_loc**, **Regcoef**, **Remark**, **Request**, **Revaudit**, **Seisgrid** (*Dseisgrid*), **Seisindex** (*Dseisindex*), **Sensor**, **Site**, **Site\_address**, **Siteaux**, **Sitechan**, **Sitepoll**, **Sp1p**, **Spvar**, **Sregion**, **Stamag**, **Stassoc**, **Std\_chanmap**, **Subs**, **Subsuser**, **Thirdmom**, **Timefreq**, **Timestamp**, **Weights**, **Wfconv**, **Wfdisc** (*Wfproto*), **Wftag**, **Xtag**  
 Description: Load date. The date and time the record was inserted into the database. For the **bull\_comp** table, *lddate* is the date of the comparison.  
 Format: date External: a17  
 NA Value: NOT ALLOWED  
 Range: any valid ORACLE date

## ▼ S/H/I Column Descriptions

Name: *length*  
 Table: **Dlfile, Wfaux**  
 Description: Length of file, bytes (**dfile**), waveform length, bytes (**wfaux**).  
 Format: number(10) External: i10  
 NA Value: NOT ALLOWED  
 Units: bytes  
 Range: *length* > 0

Name: *lg\_snr*  
 Table: **EvscRegional**  
 Description: Signal-to-noise ratio of the Lg measurement.  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Range: *lg\_snr* > 0.0

Name: *lineno*  
 Table: **Remark, Glossary**  
 Description: Line number. This integer is assigned as a sequence number for multiple line comments.  
 Format: number(8) External: i8  
 number(4) for **glossary**  
 NA Value: NOT ALLOWED  
 Range: *lineno* > 0

---

Name: *loc\_all\_stas*  
 Table: **Event\_control (In\_event\_control)**  
 Description: Logical descriptor that informs the location process whether or not it should use only stations with source-dependent corrections in event locations. If TRUE (1), use all stations in event location. If FALSE (0), only use phase data from stations possessing either an SSSC, SRST, or test-site correction. Any data without a valid correction will not be included in the final event location. Only meaningful if *src\_dpnt\_corr* is > 0. Default is TRUE.  
 Format: number(1) External: i1  
 NA Value: NOT ALLOWED  
 Range: *loc\_all\_stas* ∈ {0, 1}

---

Name: *loc\_alpha\_only*  
 Table: **Event\_control (In\_event\_control)**  
 Description: Logical descriptor that restricts phase data to be used in event location to only those stations contained in the substation list. If FALSE (0), use all stations provided in the **Site** table. If TRUE (1), only “PRIMARY” station data are used to locate events. This is option desirable in cases where the station network has varying station qualities contributing to events. Default is FALSE.  
 Format: number(1) External: i1  
 NA Value: NOT ALLOWED  
 Range: *loc\_alpha\_only* ∈ {0, 1}

---

Name: *loc\_conf*  
 Table: **Productypeevsc**  
 Description: Confidence level of location error ellipse used to assess whether the error ellipse was onshore, offshore or mixed (in other words, partially onshore and offshore).  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Range: 0.0 < *loc\_conf* < 1.0

▼ **S/H/I Column Descriptions**

---

Name: *loc\_dist\_varwgt*  
 Table: **Event\_control (In\_event\_control)**  
 Description: Logical descriptor that informs the location process if predefined distance variance weighting should be applied to the event location. The predefined weighting is a set of data variances as a function of distance. If FALSE (0) and both *user\_var\_wgt* and *srst\_var\_wgt* are also set to FALSE, then variances are determined by the *deltim*, *delslo*, and *delaz* from **Arrival**. Default is FALSE.  
 Format: number(1) External: i1  
 NA Value: NOT ALLOWED  
 Range:  $loc\_dist\_varwgt \in \{0, 1\}$

---

Name: *loc\_sdv\_mult*  
 Table: **Event\_control (In\_event\_control)**  
 Description: Large residual multiplier factor. This column is only meaningful when *loc\_sdv\_screen* is set to TRUE (1). If TRUE, all data with travel-time/azimuth/slowness residuals greater than this factor times its data variance (standard error) will be ignored during any given iteration of the location process. Default is 3.0.  
 Format: float(24) External: f5.2  
 NA Value: NOT ALLOWED  
 Range:  $loc\_sdv\_mult > 0.0$

---

Name: *loc\_sdv\_screen*  
 Table: **Event\_control (In\_event\_control)**  
 Description: Logical descriptor that tells the location process whether or not to ignore data with travel-time/azimuth/slowness residuals greater than *loc\_sdv\_mult* times its data standard error in determining an event location. If FALSE (0), include data regardless of its residuals, provided it meets other pertinent conditions. Default is FALSE.  
 Format: number(1) External: i1  
 NA Value: NOT ALLOWED  
 Range:  $loc\_sdv\_screen \in \{0, 1\}$

---

Name: *loc\_src\_dpnt\_reg*  
 Table: **Event\_control (In\_event\_control)**  
 Description: Source-dependent region identifier for event location. If source-dependent corrections are applied as part of event location process (*src\_dpnt\_corr* > 0), then *loc\_src\_dpnt\_reg* indicates region name.  
 Format: varchar2(15) External: a15  
 NA Value: – (hyphen)  
 Range: any free-format string up to 15 characters

---

Name: *locality*  
 Table: **Site\_address**  
 Description: Geographical location within a country.  
 Format: varchar2(40) External: a40  
 NA Value: – (hyphen)  
 Range: any string up to 40 characters

---

Name: *location*  
 Table: **Stassoc**  
 Description: Location description. This character string describes the location of an event identified from data recorded at a single station. An examples is Fiji-Tonga.  
 Format: varchar2(32) External: a32  
 NA Value: – (hyphen)  
 Range: any free-format string up to 32 characters

**▼ S/H/I Column Descriptions**

---

Name: *locid*  
Table: **Location, Explo**  
Description: Location identification code.  
Format: varchar2(30) External: a30  
NA Value: – (hyphen)  
Range: any valid string up to 30 characters

---

Name: *locname*  
Table: **Location**  
Description: Location name.  
Format: varchar2(15) External: a15  
NA Value: – (hyphen)  
Range: any valid string up to fifteen characters

---

Name: *logat*  
Table: **Arrival**  
Description: Log of amplitude divided by period. This measurement of signal size is often reported instead of the amplitude and period separately. This column is only filled if the separate measurements are not available.  
Format: float(24) External: f7.2  
NA Value: –999.0  
Units: log (nanometers/seconds)  
Range: *logat* > 0.0

---

Name: *login*  
Table: **Problem, Problemlog, Problemmail**  
Description: Login name of originator of log entry or a mail subscriber.  
Format: varchar2(33) External: a32  
NA Value: NOT ALLOWED  
Range: any valid string up to 33 characters that is a valid email address

---

Name: *lon*  
Table: **Location, Mappoint, Origin (Originref, Origin\_temp\_ga), Ref\_loc, Site, Stassoc**  
Description: Geographic longitude. Longitudes are measured positive east of the Greenwich meridian.  
Format: float(24) External: f9.4  
NA Value: -999.0  
Units: degrees  
Range: -180.0 ≤ *lon* ≤ 180.0

---

Name: *lon1*  
Table: **Seisindex (Dseisindex)**  
Description: Western-most longitude of the first grid cell in **Seisgrid (Dseisgrid)**.  
Format: float(24) External: f9.4  
NA Value: NOT ALLOWED  
Units: degrees  
Range: -180.0 ≤ *lon1* ≤ 180.0

**▼ S/H/I Column Descriptions**

---

Name: *lonmajor*  
Table: **Mapdisc**  
Description: Longitude interval (in degrees) for displaying major grid lines in the *Map* application.  
Format: float(24) External: f9.4  
NA Value: -999.0  
Units: degrees  
Range: 0 < *lonmajor* < 180.0

---

Name: *lonminor*  
Table: **Mapdisc**  
Description: Longitude interval (in degrees) for displaying minor grid lines in the *Map* application.  
Format: float(24) External: f9.4  
NA Value: -999.0  
Units: degrees  
Range: -180.0 < *lonminor* < 180.0

---

Name: *lonorigradians*  
Table: **Mapdisc**  
Description: Longitude origin radians. Coordinates in radians of the lower left corner in the *Map* application. *Map* uses this for mercator projections only.  
Format: float(24) External: f9.4  
NA Value: -999.0  
Units: radians  
Range:  $-\pi \leq \text{lonorigradians} \leq \pi$

---

Name: *low\_cut*  
Table: **Hydro\_features**  
Description: Low-cut frequency of filter.  
Format: float(24) External: f9.4  
NA Value: -1.0  
Units: Hertz  
Range: *low\_cut* > 0.0

---

Name: *lsta*  
Table: **Ev\_summary (Ex\_summary, An\_summary)**  
Description: Number of local arrival times associated with an event. "Local" is currently defined as a station-event distance of less than 250 km.  
Format: number(8) External: i8  
NA Value: -1  
Range: *lsta* > 0

---

Name: *machine*  
Table: **Dlfile, Dlman, Fwsite**  
Description: Fully qualified domain name of the computer where the connection manager resides.  
Format: varchar2(32) External: a32  
NA Value: - (hyphen)  
Range: any string up to 32 characters that points to a valid machine

## ▼ S/H/I Column Descriptions

---

Name: *mag\_all\_stas*  
Table: **Event\_control (In\_event\_control)**  
Description: Logical descriptor that informs magnitude process whether or not it should only use amplitude information from stations with magnitude test-site corrections. If TRUE (1), use all amplitude information in event magnitudes. If FALSE (0), use only amplitude data from stations possessing a magnitude test-site correction; any data without a valid correction will not be included in the magnitude determination. Only meaningful if *mag\_test\_site* is not null or “-.” Default is TRUE.  
Format: number(1) External: i1  
NA Value: NOT ALLOWED  
Range: *mag\_all\_stas* ∈ {0, 1}

---

Name: *mag\_alpha\_only*  
Table: **Event\_control (In\_event\_control)**  
Description: Logical descriptor that restricts amplitude data to be used in the magnitude determination to only those stations contained in the substation list. If FALSE (0), use all valid amplitudes. If TRUE (1), only “Primary seismic” station data are used for the magnitude calculation. This option is desirable in cases where the station network has varying station qualities contributing to the magnitude. Default is FALSE.  
Format: number(1) External: i1  
NA Value: NOT ALLOWED  
Range: *mag\_alpha\_only* ∈ {0, 1}

Name: *mag\_sdv\_mult*  
 Table: **Event\_control (In\_event\_control)**  
 Description: Magnitude large residual multiplier factor. This column is meaningful only when *mag\_sdv\_screen* is set to TRUE (1). If TRUE, an amplitude with magnitude residuals greater than this factor times its data variance (standard error) will be ignored by the magnitude process. Default is 3.0.  
 Format: float(24) External: f5.2  
 NA Value: NOT ALLOWED  
 Range: *mag\_sdv\_mult* > 0 . 0

Name: *mag\_sdv\_screen*  
 Table: **Event\_control (In\_event\_control)**  
 Description: Logical descriptor that tells magnitude process whether or not to ignore amplitude data with magnitude residuals greater than *mag\_sdv\_mult* times its data standard error in determining the given magnitude. If FALSE (0), include data regardless of its residuals, provided it meets other pertinent conditions. Default is FALSE.  
 Format: number(1) External: i1  
 NA Value: NOT ALLOWED  
 Range: *mag\_sdv\_screen* ∈ {0, 1}

Name: *mag\_src\_dpnt\_reg*  
 Table: **Event\_control (In\_event\_control)**  
 Description: Source-dependent region identifier for magnitude determination. If source-dependent corrections are applied as part of the event magnitude determination process, then *mag\_src\_dpnt\_reg* indicates the region name.  
 Format: varchar2(15) External: a15  
 NA Value: – (hyphen)  
 Range: any free-format string up to 15 characters

## ▼ S/H/I Column Descriptions

---

Name: *magdef*  
Table: **Stamag**  
Description: Magnitude defining switch. A one-character flag indicating whether or not a station magnitude for a given **stamag** record was used in determining the network magnitude. This column is defining (*magdef* = d) if it is used in network magnitude calculation or nondefining (*magdef* = n) if it is not used.  
Format: varchar2(1) External: a1  
NA Value: – (hyphen)  
Range: *magdef* ∈ {d, n}

---

Name: *magid*  
Table: **Netmag, Stamag**  
Description: Network magnitude identifier. This value is assigned to identify a network magnitude in the **netmag** table. This column is required for every network magnitude. Magnitudes given in **Origin** (**Originref**, **Origin\_temp\_ga**) must reference a network magnitude with *magid* = *mbid*, *mlid* or *msid*, whichever is appropriate (see *mbid*, *mlid*, or *msid*).  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *magid* > 0

Name: *magnitude*  
 Table: **Netmag, Stamag**  
 Description: Magnitude. This column gives the magnitude value of the type indicated in *magtype*. The value is derived in a variety of ways, which are not necessarily linked directly to an arrival (see *imb*, *iml*, *ims*, *magtype*, *mb*, *ml*, and *ms*).  
 Format: float(24) External: f7.2  
 NA Value: NOT ALLOWED  
 –999.0 for **netmag**  
 Units: magnitude  
 Range: *magnitude* > –2.0

---

Name: *magpref\_mb*  
 Table: **Producttypeevsc**  
 Description:  $m_b$  magnitude type used for screening (see **Netmag.magtype**). Default is **mb\_ave**.  
 Format: varchar2(6) External: a6  
 NA Value: NOT ALLOWED  
 Range: any  $m_b$  magnitude type up to six characters

---

Name: *magpref\_ms*  
 Table: **Producttypeevsc**  
 Description:  $M_s$  magnitude type used for screening (see **Netmag.magtype**). Default is **ms\_ave**.  
 Format: varchar2(6) External: a6  
 NA Value: NOT ALLOWED  
 Range: any  $M_s$  magnitude type up to six characters

**▼ S/H/I Column Descriptions**

---

Name: *magres*  
Table: **Stamag**  
Description: Magnitude residual. This column is the difference between the magnitude for a given **stamag** record and the network magnitude.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: magnitude  
Range: -10.0 < *magres* < 10.0

---

Name: *magth*  
Table: **Seisgrid (Dseisgrid)**  
Description: Magnitude threshold used to calculate the number of events per year in each grid cell.  
Format: float(24) External: f7.2  
NA Value: NOT ALLOWED  
Range: any valid magnitude value

---

Name: *magtype*  
Table: **Netmag, Producttypeorigin, Seisgrid (Dseisgrid), Stamag**  
Description: Magnitude type, for example, mb.  
Format: varchar2(6) External: a6  
varchar2(4) for **producttypeorigin**  
NA Value: NOT ALLOWED  
Range: any magnitude type up to six characters

Name: *mapfiletype*  
 Table: **Mapdisc**  
 Description: Specifies how the *Map* program handles the referenced *Map* file. If *mapfiletype* = *all*, then the program reads the file in its entirety. If *mapfiletype* = *blk*, then the program reads only the blocks necessary for the display area.  
 Format: varchar2(4) External: a4  
 NA Value: NOT ALLOWED  
 Range: *mapfiletype* ∈ {*all*, *blk*}

Name: *mapid*  
 Table: **Mapcolor, Mapdisc, Mapover**  
 Description: **Mapdisc** identifier. Each **mapdisc** is assigned a unique positive integer that identifies it in a database.  
 Format: number(8) External: i8  
 NA Value: NOT ALLOWED  
 Range: *mapid* > 0

Name: *mapname*  
 Table: **Mapdisc**  
 Description: Name of the map. Each map in the *Map* application is assigned a name for identifying the map in a list of all maps.  
 Format: varchar2(64) External: a64  
 NA Value: NOT ALLOWED  
 Range: any string up to 64 characters

**▼ S/H/I Column Descriptions**

---

Name: *maptype*  
Table: **Mapdisc**  
Description: Type of map. A positive integer enumerator for identifying the output graphic type, either raster or vector (*maptype* = 1 for raster and *maptype* = 2 for vector).  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range:  $maptype \in \{1, 2\}$

---

Name: *masked*  
Table: **Qcstats**  
Description: Amount of data in the processing interval masked due to point-spikes, spikes, or constant value segments.  
Format: float(53) External: f17.5  
NA Value: -999.0  
Units: seconds  
Range:  $masked \geq 0$

---

Name: *maxdelta*  
Table: **Allow\_resid**  
Description: Maximum station to event distance.  
Format: float(24) External: f8.3  
NA Value: -1.0  
Units: degrees  
Range:  $maxdelta \geq 0.0$

---

Name: *maxdep\_err*  
Table: **Producttypeorigin**  
Description: Maximum of *depth\_error* product constraint.  
Format: float(24) External: f9.4  
NA Value: 999.0  
Units: kilometers  
Range: *mindeperr < maxdep\_err < 999.0*

---

Name: *maxdepth*  
Table: **Producttypeorigin**  
Description: Maximum depth value for a product constraint.  
Format: float(24) External: f9.4  
NA Value: 999.0  
Units: kilometers  
Range: *mindepth < maxdepth < 999.0*

---

Name: *maxdist*  
Table: **Origaux**  
Description: Distance to farthest station.  
Format: float(24) External: f6.2  
NA Value: -1.0  
Units: degrees  
Range:  $0.0 \leq \text{maxdist} \leq 180.0$

**▼ S/H/I Column Descriptions**

---

Name: *maxesd*  
Table: **Producttypeorigin**  
Description: Maximum distance between the event and a station.  
Format: float(24) External: f6.2  
NA Value: -1  
Units: degrees  
Range: *minesd* ≤ *maxesd* ≤ 180.0

---

Name: *maxf*  
Table: **Fsave, Fsdisc**  
Description: Maximum frequency. Frequency of the last sample in a Fourier spectrum.  
Format: float(24) External: f9.4  
float(9) for **fsave**  
NA Value: -1.0  
Units: Hertz  
Range: *maxf* > 0.0

---

Name: *maxkx*  
Table: **Fkdisc**  
Description: Maximum wavenumber along x-axis in an f-k spectrum. F-k spectra are assumed to be symmetrical, ranging from -*maxkx* to *maxkx*.  
Format: float(24) External: f7.4  
NA Value: -1.0 (Either *maxkx* or *maxsx* must be set.)  
Units: kilometers<sup>-1</sup>  
Range: *maxkx* > 0.0

Name: *maxky*  
 Table: **Fkdisc**  
 Description: Maximum wavenumber along *y*-axis of an f-k spectrum. F-k spectra are assumed to be symmetrical, ranging from *-maxky* to *maxky*.  
 Format: float(24) External: f7.4  
 NA Value: -1.0 (Either *maxky* or *maxsy* must be set.)  
 Units: kilometers<sup>-1</sup>  
 Range: *maxky* > 0.0

---

Name: *maxlat*  
 Table: **Producttypeorigin, Producttypesta**  
 Description: Maximum latitude. Locations north of the equator have positive latitude.  
 Format: float(24) External: f9.4  
 NA Value: 999.0  
 Units: degrees  
 Range: -90.0 ≤ *maxlat* ≤ 90.0

---

Name: *maxlon*  
 Table: **Producttypeorigin, Producttypesta**  
 Description: Maximum longitude. Locations east of the Greenwich Meridian have positive longitude.  
 Format: float(24) External: f9.4  
 NA Value: 999.0  
 Units: degrees  
 Range: -180.0 ≤ *maxlon* ≤ 180.0

**▼ S/H/I Column Descriptions**

---

Name: *maxmag*  
Table: **Producttypeorigin**  
Description: Maximum value of magnitude for a product constraint.  
Format: float(24) External: f7.2  
NA Value: 999.0  
Units: magnitude  
Range: *minmag < maxmag < 999.0*

---

Name: *maxmb\_ms*  
Table: **Producttypeorigin**  
Description: Maximum value of  $m_b - M_s$ .  
Format: float(24) External: f7.2  
NA Value: 999.0  
Units: magnitude  
Range: *minmb\_ms < maxmb\_ms < 999.0*

---

Name: *maxsx*  
Table: **Fkdisc**  
Description: Maximum slowness along the x-axis in a broadband f-k spectrum. F-k spectra are assumed to be symmetrical, ranging from  $-maxsx$  to  $maxsx$ .  
Format: float(24) External: f7.4  
NA Value: -1.0 (Either *maxkx* or *maxsx* must be set.)  
Units: seconds/kilometer  
Range: *maxsx > 0.0*

Name: *maxsy*  
 Table: **Fkdisc**  
 Description: Maximum slowness along the *y*-axis in a broadband f-k spectrum. F-k spectra are assumed to be symmetrical, ranging from *-maxsy* to *maxsy*.  
 Format: float(24) External: f7.4  
 NA Value: *-1.0* (Either *maxsy* or *maxky* must be set.)  
 Units: seconds/kilometer  
 Range: *maxsy* > 0.0

Name: *maxtime*  
 Table: **Fwfile**  
 Description: Greatest time period that a gap in the data can span.  
 Format: float(53) External: f17.5  
 NA Value: *-999.0*  
 Units: seconds  
 Range: *maxtime* > 0

Name: *mb*  
 Table: **Evsc\_prod, Origin (Originref, Origin\_temp\_ga)**  
 Description: Body wave magnitude, *m<sub>b</sub>*.  
*(origin)* This is the body wave magnitude of an event. The identifier *mbid* that points to *magid* in the **Netmag** table is associated with this column. The information in that record summarizes the method of analysis and data used (see *imb*, *iml*, *ims*, *magnitude*, *magtype*, *ml*, and *ms*).  
*(evsc\_prod)* Body wave magnitude for event screening. The type of measurement is indicated by *magtype\_mb*.  
 Format: float(24) External: f7.2  
 NA Value: *-999.0*  
 Units: magnitude  
 Range: *mb* > -2.0

**▼ S/H/I Column Descriptions**

---

Name: *mb\_err*  
Table: **Producttypeevsc**  
Description: Uncertainty of single-station  $m_b$  magnitude estimates, used in the computation of the confidence interval of the network estimate of  $m_b$  minus  $M_s$ .  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: magnitude  
Range:  $0.0 < mb\_err < 10.0$

---

Name: *mb\_max\_dist*  
Table: **Event\_control (In\_event\_control)**  
Description: Body wave magnitude ( $m_b$ ) station magnitudes at distances greater than *mb\_max\_dist* will not be used in network magnitude calculations.  
Format: float(24) External: f9.4  
NA Value: -999.0  
Units: degrees  
Range:  $0.0 \leq mb\_max\_dist \leq 180.0$

---

Name: *mb\_min\_dist*  
Table: **Event\_control (In\_event\_control)**  
Description: Body wave magnitude ( $m_b$ ) station magnitudes at distances less than *mb\_min\_dist* will not be used in network magnitude calculations.  
Format: float(24) External: f9.4  
NA Value: -999.0  
Units: degrees  
Range:  $0.0 \leq mb\_min\_dist \leq 180.0$

---

Name: *mbid*  
 Table: **Origin (Originref, Origin\_temp\_ga)**  
 Description: Magnitude identifier for *mb*. This column stores the *magid* for a record in **Netmag**. *Mbid* is a foreign key joining **origin** to **netmag** where **origin.mbid** = **netmag.magid** (see *magid*, *mlid*, and *msid*).  
 Format: number(8) External: i8  
 NA Value: -1  
 Range: *mbid* > 0

---

Name: *mbms*  
 Table: **Evsc\_prod**  
 Description: Difference of body and surface wave magnitudes,  $m_b$  minus  $M_s$ , including a slope term given by *mbms\_slope* of table **Producttypeevsc**.  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Units: magnitude  
 Range: *mbms* > -999.0

---

Name: *mbms\_conf*  
 Table: **Producttypeevsc**  
 Description: Confidence level for the  $m_b$  minus  $M_s$  screening criterion. This confidence level is for a one-sided confidence interval for  $m_b$  minus  $M_s$ .  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Range:  $0.0 < mbms\_conf < 1.0$

---

▼ **S/H/I Column Descriptions**

---

Name: *mbms\_slope*  
 Table: **Producttypeevsc**  
 Description: Slope term (A) for the  $m_b$  minus  $M_s$  relation ( $Am_b - M_s$ ) to account for calibration of magnitude dependence of the screening criterion. The standard default value is 1.25. A typical range of reasonable values is from +1.0 to +2.0.  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Range:  $0.0 < mbms\_slope < 999.0$

---

Name: *mbms\_thresh*  
 Table: **Producttypeevsc**  
 Description: Threshold for the  $m_b$  minus  $M_s$  screening criterion. Events with one-sided confidence intervals for  $m_b$  minus  $M_s$  ( $Am_b - M_s$ , including the slope term) less than this threshold are screened out at the confidence level given by *mbms\_conf*. Typical values of this threshold range from +1.0 to +4.0, depending on the slope term given by *mbms\_slope*.  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Units: magnitude  
 Range:  $0.0 < mbms\_thresh < 999.0$

---

Name: *mbmserr*  
 Table: **Evsc\_prod**  
 Description: Error of  $m_b$  minus  $M_s$ . This is the size of the one-sided confidence interval used for the  $m_b$  minus  $M_s$  screening criterion for a confidence level given by *mbms\_conf* of table **Producttypeevsc**.  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Units: magnitude  
 Range:  $mbmserr > -999.0$

---

Name: *mean\_arrival\_time*  
 Table: **Hydro\_features**  
 Description: Mean arrival time of the estimated signal energy, in epoch time.  
 Format: float(53) External: f17.5  
 NA Value: NOT ALLOWED  
 Units: seconds  
 Range: any valid epoch time

---

Name: *medium*  
 Table: **Explo**  
 Description: Explosion shot medium.  
 Format: varchar2(48) External: a48  
 NA Value: – (hyphen)  
 Range: any lower-case string up to 48 characters

---

Name: *merge\_adjacent*  
 Table: **Arch\_data\_type**  
 Description: Merge flag. If y, Archive should merge adjacent rows.  
 Format: varchar2(2) External: a2  
 NA Value: – (hyphen)  
 Range: *merge\_adjacent* ∈ {y, n}

---

Name: *mfoff*  
 Table: **Msgdisc**  
 Description: Offset in bytes to beginning of message.  
 Format: number(10) External: i10  
 NA Value: –1  
 Units: bytes  
 Range: *mfoff* > 0

**▼ S/H/I Column Descriptions**

---

Name: *min\_dp\_snr\_pp*  
Table: **Producttypeevsc**  
Description: Minimum pP depth phase signal-to-noise ratio required for depth phase analysis.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Range:  $0 < \text{min\_dp\_snr\_pp} < 999$

---

Name: *min\_dp\_snr\_sp*  
Table: **Producttypeevsc**  
Description: Minimum sP depth phase signal-to-noise ratio required for depth phase analysis.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Range:  $0 < \text{min\_dp\_snr\_sp} < 999$

---

Name: *min\_dt\_pp*  
Table: **Evsc\_prod**  
Description: pP-P travel-time difference at nearest station beyond 25 deg.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: seconds  
Range:  $0 < \text{min\_dt\_pp} < 999$

---

Name: *min\_dt\_sp*  
Table: **Evsc\_prod**  
Description: sP–P travel-time difference at nearest station beyond 25 deg.  
Format: float(24) External: f7.2  
NA Value: –999.0  
Units: seconds  
Range:  $0 < \text{min\_dt\_sp} < 999$

---

Name: *min\_mb*  
Table: **Productypeevsc**  
Description: Minimum  $m_b$  magnitude for application of event-screening criteria.  
Format: float(24) External: f7.2  
NA Value: –999.0  
Units: magnitude  
Range:  $\text{min\_mb} > -999.0$

---

Name: *min\_moveout\_pp*  
Table: **Productypeevsc**  
Description: Minimum (pP–P) travel time moveout required for the depth screening criterion to be applied to depth-phase solutions.  
Format: float(24) External: f7.2  
NA Value: –999.0  
Units: seconds  
Range:  $-999.0 < \text{min\_moveout\_pp} < 999.0$

**▼ S/H/I Column Descriptions**

---

Name: *min\_moveout\_sp*  
Table: **Producttypeevsc**  
Description: Minimum (sP-P) travel time moveout required for the depth screening criterion to be applied to depth-phase solutions.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: seconds  
Range: -999.0 < *min\_moveout\_sp* < 999.0

---

Name: *min\_ndef*  
Table: **Producttypeevsc**  
Description: Minimum number of defining phases required for the event-screening criteria to be applied to a seismic-acoustic event.  
Format: number(8) External: i8  
NA Value: -1  
Range: *min\_ndef* > 0

---

Name: *min\_ndp\_pp*  
Table: **Producttypeevsc**  
Description: Minimum number of pP depth phases required for the depth screening criterion to be applied to depth-phase solutions.  
Format: number(8) External: i8  
NA Value: -1  
Range: *min\_ndp\_pp* > 0

---

Name: *min\_ndp\_sp*  
 Table: **Productypeevsc**  
 Description: Minimum number of sP depth phases required for the depth screening criterion to be applied to depth-phase solutions.  
 Format: number(8) External: i8  
 NA Value: -1  
 Range: *min\_ndp\_sp* > 0

---

Name: *min\_nsta\_ms*  
 Table: **Productypeevsc**  
 Description: Minimum number of stations required to contribute to the network  $M_s$  estimate for the  $m_b$  minus  $M_s$  screening criterion to be applied.  
 Format: number(8) External: i8  
 NA Value: -1  
 Range:  $0 < \text{min\_nsta\_ms} < 1000$

---

Name: *min\_wdepth*  
 Table: **Evsc\_prod**  
 Description: Minimum depth of water within the location error ellipse defined by *smaj\_sc*, *smin\_sc*, and *strike*.  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Units: meters  
 Range: *min\_wdepth* > 0.0

**▼ S/H/I Column Descriptions**

---

Name: *min\_wdepth\_thresh*  
Table: **Producttypeevsc**  
Description: Minimum water depth threshold for application of the hydroacoustic screening criteria.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: kilometers  
Range:  $0.0 < \text{min\_wdepth\_thresh} < 10.0$

---

Name: *mindelta*  
Table: **Allow\_resid**  
Description: Minimum station to event distance.  
Format: float(24) External: f8.3  
NA Value: -1.0  
Units: degrees  
Range:  $\text{mindelta} \geq 0.0$

---

Name: *mindep\_err*  
Table: **Producttypeorigin**  
Description: Minimum value of *depth\_error* constraint.  
Format: float(24) External: f9.4  
NA Value: -999.0  
Units: kilometers  
Range:  $-999.0 < \text{mindep\_err} < \text{maxdep\_err}$

---

Name: *mindepth*  
Table: **Producttypeorigin**  
Description: Minimum depth product constraint.  
Format: float(24) External: f9.4  
NA Value: -999.0  
Units: kilometers  
Range:  $-999.0 < \text{mindepth} < \text{maxdepth}$

---

Name: *mindist*  
Table: **Origaux**  
Description: Distance to closest station.  
Format: float(24) External: f6.2  
NA Value: -1.0  
Units: degrees  
Range:  $0.0 \leq \text{maxdist} \leq 180.0$

---

Name: *minesd*  
Table: **Producttypeorigin**  
Description: Minimum distance between an event and stations.  
Format: float(24) External: f6.2  
NA Value: -1.0  
Units: degrees  
Range:  $0.0 \leq \text{minesd} \leq \text{maxesd}$

**▼ S/H/I Column Descriptions**

---

Name: *minlat*  
Table: **Producttypeorigin, Producttypesta**  
Description: Minimum latitude. Locations north of the equator have positive latitude.  
Format: float(24) External: f9.4  
NA Value: -999.0  
Units: degrees  
Range: -90.0 ≤ *minlat* ≤ 90.0

---

Name: *minlon*  
Table: **Producttypeorigin, Producttypesta**  
Description: Minimum longitude defining a reference area. Locations east of the Greenwich Meridian have positive longitude.  
Format: float(24) External: f9.4  
NA Value: -999.0  
Units: degrees  
Range: -180.0 ≤ *minlon* ≤ 180.0

---

Name: *minmag*  
Table: **Producttypeorigin**  
Description: Minimum value of the magnitude constraint.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: magnitude  
Range: -999.0 < *minmag* < *maxmag*

Name: *minmb\_ms*  
 Table: **Producttypeorigin**  
 Description: Minimum value of  $m_b - M_s$  product constraint.  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Units: magnitude  
 Range:  $-999.0 < \text{minmb\_ms} < \text{maxmb\_ms}$

Name: *missing*  
 Table: **Qcstats**  
 Description: Amount of missing data in the interval.  
 Format: float(53) External: f17.5  
 NA Value: NOT ALLOWED  
 Units: seconds  
 Range: *masked* < 9999999999.999

Name: *ml*  
 Table: **Origin (Originref, Origin\_temp\_ga)**  
 Description: Local magnitude ( $M_L$ ) of an event. The identifier *mlid*, which points to *magid* in the **Netmag** table, is associated with this column. The information in that record summarizes the method of analysis and the data used (see *imb*, *iml*, *ims*, *magnitude*, *magtype*, *mb*, and *ms*).  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Units: magnitude  
 Range:  $ml > -2.0$

**▼ S/H/I Column Descriptions**

---

Name: *mlid*  
Table: **Origin (Originref, Origin\_temp\_ga)**  
Description: Magnitude identifier for *ml*. This column stores the *magid* for a record in **Netmag**. *Mlid* is a foreign key joining **origin** to **netmag**, where *table.mlid = table.magid* (see *magid*, *msid*, and *mbid*).  
Format: number(8) External: i8  
NA Value: -1  
Range: *mlid > 0*

---

Name: *mmodel*  
Table: **Event\_control (In\_event\_control), Stamag**  
Description: Magnitude model. This character string identifies the magnitude model employed for station (**stamag**) or overall network magnitude calculation (**event\_control**). In **stamag**, *mmodel* is the unique magnitude model as extracted from the magnitude correction file. In **event\_control**, *mmodel* indicates only whether or not mixed models were employed (**mixed**) or a unique magnitude model was used for all stations. In the latter case, it would be identical to **stamag.mmodel**.  
Format: varchar2(15) External: a15  
NA Value: - (hyphen)  
Range: any free-format string up to 15 characters

---

Name: *modauthor*  
Table: **Request**  
Description: Author of last state change.  
Format: varchar2(15) External: a15  
NA Value: - (hyphen)  
Range: any string up to 15 characters

---

Name: *moddate*  
Table: **Interval**  
Description: Modification date. The date and time the record was last updated (*state* column) in the database.  
Format: date External: a17  
NA Value: NOT ALLOWED  
Range: any valid ORACLE date

---

Name: *modtime*  
Table: **Request**  
Description: Modification time. The epoch time that the record was last updated in the database.  
Format: float(53) External: f17.5  
NA Value: NOT ALLOWED  
Units: seconds  
Range: any valid epoch time

---

Name: *moist*  
Table: **Expl**  
Description: Moisture content of explosion shot-point medium.  
Format: float(24) External: f5.2  
NA Value: -1  
Units: 1/100%  
Range: *moist* ≤ 1.0

**▼ S/H/I Column Descriptions**

---

Name: *moveout\_pp*  
Table: **Evsc\_prod**  
Description: Moveout of (pP-P) travel times for seismic stations between 25 and 100 degrees from an event.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: seconds  
Range: *moveout\_pp > -999.0*

---

Name: *moveout\_sp*  
Table: **Evsc\_prod**  
Description: Moveout of (sP-P) travel times for seismic stations between 25 and 100 degrees from an event.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: seconds  
Range: *moveout\_sp > -999.0*

---

Name: *mpdescrip*  
Table: **Mappoint**  
Description: Arbitrary string describing the referenced geographic point.  
Format: varchar2(50) External: a50  
NA Value: - (hyphen)  
Range: any string up to 50 characters

---

Name: *mplabel*  
 Table: **Mappoint**  
 Description: String used as a label for the geographic point described by a record in the **mappoint** table (for example, Paris, London, K8, and so on).  
 Format: varchar2(65) External: a65  
 NA Value: – (hyphen)  
 Range: any string up to 65 characters

---

Name: *mptype*  
 Table: **Mappoint**  
 Description: String specifying the type of geographic point described by a record in the **mappoint** table. Examples include cities, mines, and so on.  
 Format: varchar2(20) External: a20  
 NA Value: – (hyphen)  
 Range: any free-format (spaces allowed) string up to 20 characters

---

Name: *ms*  
 Table: **Evsc\_prod, Origin (Originref, Origin\_temp\_ga)**  
 Description: Surface wave magnitude.  
 Format: (origin) This is the surface wave magnitude for an event. The identifier *msid*, which points to *magid* in the **Netmag** table, is associated with this column. The information in that record summarizes the method of analysis and the data used (see *imb*, *iml*, *ims*, *magnitude*, *magtype*, *mb*, and *ml*).  
 (evsc\_prod) Surface wave magnitude for event screening.  
 Format: float(24) External: f7.2  
 NA Value: –999.0  
 Units: magnitude  
 Range: *ms* > –2.0

**▼ S/H/I Column Descriptions**

---

Name: *ms\_err*  
Table: **Producttypeevsc**  
Description: Uncertainty of single-station  $M_s$  magnitude estimates used in the computation of the confidence interval of the network estimate of  $m_b$  minus  $M_s$ .  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: magnitude  
Range:  $0.0 < ms\_err < 10.0$

---

Name: *mscore*  
Table: **Evsc\_prod**  
Description: Score for the  $m_b$  minus  $M_s$  event-screening criterion.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Range:  $mscore > -999.0$

---

Name: *msgdformat*  
Table: **Fpdescription, Msgdatatype**  
Description: General format of the data that follows.  
Format: varchar2(16) External: a16  
NA Value: NOT ALLOWED  
Range: any string up to 16 characters

---

Name: *msgdid*  
 Table: **Msgdest**  
 Description: Message destination identifier.  
 Format: number(8) External: i8  
 NA Value: -1  
 Range: *msgdid > 0*

---

Name: *msgdtype*  
 Table: **Fpdescription, Msgdatatype**  
 Description: Data type of a data section within an *AutoDRM* message.  
 Format: varchar2(16) External: a16  
 NA Value: NOT ALLOWED  
 Range: any string up to 16 characters that is a recognized data type

---

Name: *msgid*  
 Table: **Ftpfailed, Msgaux, Msgdatatype, Msgdest, Msgdisc, Prodtrack**  
 Description: Message identifier. In **msgdest**, this column is the message identifier of the response message created by *AutoDRM*.  
 Format: number(8) External: i8  
 NA Value: -1  
 Range: *msgid > 0*

---

Name: *msgrow*  
 Table: **Msgaux**  
 Description: Number of lines in a message.  
 Format: number(4) External: i4  
 NA Value: -1  
 Units: lines  
 Range: *msgrow > 0*

**▼ S/H/I Column Descriptions**

---

Name: *msgsrc*  
Table: **Msgdisc**  
Description: Source code from where the message was sent.  
Format: varchar2(16) External: a16  
NA Value: – (hyphen)  
Range: any string up to 16 characters

---

Name: *msgtype*  
Table: **Datauser, Msgdisc**  
Description: Message type.  
Format: varchar2(16) External: a16  
NA Value: – (hyphen)  
Range: any string up to 16 characters

---

Name: *msgver*  
Table: **Msgdisc**  
Description: Message Subsystem version number.  
Format: varchar2(8) External: a8  
NA Value: – (hyphen)  
Range: any string up to eight characters

---

Name: *msid*  
Table: **Origin (Originref, Origin\_temp\_ga)**  
Description: Magnitude identifier for *ms*. This column stores the *magid* for a record in **Netmag**. *Msid* is a foreign key joining **origin** to **netmag**, where *table.msid = table.magid* (see *magid*, *mlid*, and *mbid*).  
Format: number(8) External: i8  
NA Value: –1  
Range: *msid > 0*

---

Name: *msize*  
 Table: **Msgdatatype, Msgdisc**  
 Description: Size of bytes of message or section of a message.  
 Format: number(8) External: i8  
           number(10) for **msgdisc**  
 NA Value: -1  
 Units: bytes  
 Range: *msize* > 0

Name: *mtype*  
 Table: **Ampdescript**  
 Description: Measurement type. This column defines how the amplitude is measured in a given time window. The following values are allowed: **peak** (maximum amplitude), **stav** (maximum short-term average amplitude), **rms** (root-mean-squared amplitude), **peak2tr** (maximum peak-to-trough amplitude), and **1stpeak** (first motion amplitude).  
 Format: varchar2(8) External: a8  
 NA Value: - (hyphen)  
 Range: *mtype* ∈ {peak, stav, rms, peak2tr, 1stpeak}

Name: *multev*  
 Table: **Ex\_an**  
 Description: Indicates whether or not another analyst event solution is within 50 km and 5 minutes of the analyst event (for example, multiple event).  
 Format: varchar2(4) External: a4  
 NA Value: - (hyphen)  
 Range: *multev* ∈ {y, n}

**▼ S/H/I Column Descriptions**

---

Name: *na\_value*  
Table: **Na\_value**  
Description: Value to be inserted for a column when no other value is available.  
Format: varchar2(30) External: a30  
NA Value: NOT ALLOWED  
Range: any string up to 30 characters that is valid for that column

---

Name: *name*  
Table: **Chan\_groups, Explo, Fpdescription, Interval, Site\_address**  
Description: Name of a constant, variable, or parameter.  
Format: varchar2(20) External: a20  
varchar2(16) for **chan\_groups**  
varchar2(32) for **explo**  
varchar2(64) for **f.getDescription**  
NA Value: – (hyphen)  
Range: any string up to (16, 20, 32, 64) characters

---

Name: *narr1*  
Table: **Bull\_comp**  
Description: Number of associated arrivals for *orid1*.  
Format: number(8) External: i8  
NA Value: –1  
Range: *narr1* ≥ 0

---

Name: *narr2*  
Table: **Bull\_comp**  
Description: Number of associated arrivals for *orid2*.  
Format: number(8) External: i8  
NA Value: –1  
Range: *narr2* ≥ 0

---

Name: *nass*  
 Table: **Origin (Originref, Origin\_temp\_ga)**  
 Description: Number of associated arrivals. This column gives the number of arrivals associated with the origin.  
 Format: number(4) External: i4  
 NA Value: -1  
 Range: *nass* > 0

---

Name: *navcep*  
 Table: **Timefreq**  
 Description: Average maximum value in the two-dimensional cepstrum of the north component traces.  
 Format: float(24) External: f7.2  
 NA Value: NOT ALLOWED  
 Range: *navcep* ≥ 0

---

Name: *nave*  
 Table: **Fsave**  
 Description: Number of spectra averaged to produce the averaged spectrum.  
 Format: number(4) External: i4  
 NA Value: NOT ALLOWED  
 Range: *nave* ≥ 1

---

Name: *navcor*  
 Table: **Timefreq**  
 Description: Average autocorrelation along the time axis across all frequencies excluding randomized points of the north component traces.  
 Format: float(24) External: f7.2  
 NA Value: NOT ALLOWED  
 Range: *navcor* ≥ 0

**▼ S/H/I Column Descriptions**

---

Name: *navpct*  
Table: **Timefreq**  
Description: Average ratio of bad points to total of the north component traces.  
Format: float(24) External: f7.2  
NA Value: NOT ALLOWED  
Range:  $0 \leq \text{navpct} \leq 1$

---

Name: *ncalib*  
Table: **Beamaux, Instrument**  
Description: Nominal calibration factor. This conversion factor maps digital data to earth displacement. The factor holds true at the oscillation period specified by *ncalper*. A positive value means ground motion increasing in component direction (up, north, east) is indicated by increasing counts. A negative value means the opposite. Actual calibration for a particular recording is determined using the **Wfdisc** (**Wfproto**) and **Sensor** tables (see *calratio*).  
Format: float(24) External: f16.6  
NA Value: NOT ALLOWED  
Units: nanometers/digital count  
Range:  $\text{ncalib} \neq 0$

---

Name: *ncalper*  
Table: **Beamaux, Instrument**  
Description: Calibration period. This column is the period for which *ncalib* is valid.  
Format: float(24) External: f16.6  
NA Value: NOT ALLOWED  
Units: seconds  
Range:  $\text{ncalper} > 0.0$

---

Name: *nconstseg*  
 Table: **Qcstats**  
 Description: Number of constant valued segments in the detection processing interval.  
 Format: number(8) External: i8  
 NA Value: -1  
 Range:  $nconstseg \geq 0$

---

Name: *ndc*  
 Table: **Fwfile, Fwgap, Fwsite**  
 Description: Destination to which data are forwarded by the *Continuous Data Subsystem*.  
 Format: varchar2(6) External: a6  
 NA Value: - (hyphen)  
 Range: any upper-case string up to six characters

---

Name: *ndef*  
 Table: **Ev\_summary (Ex\_summary, An\_summary), Origin (Originref, Origin\_temp\_ga)**  
 Description: Number of time-defining phases.  
 Format: number(4) External: i4  
 number(8) for **ev\_summary**  
 NA Value: -1  
 Range:  $0 < ndef \leq nass$

---

Name: *ndef1*  
 Table: **Bull\_comp**  
 Description: Number of time-defining phases for *orid1*.  
 Format: number(8) External: i8  
 NA Value: -1  
 Range:  $ndef1 \geq 0$

**▼ S/H/I Column Descriptions**

---

Name: *ndef1arr2*  
Table: **Bull\_comp**  
Description: Number of defining arrivals for *orid1* that are arrivals (defining or nondefining) for *orid2*.  
Format: number(8) External: i8  
NA Value: -1  
Range: *ndef1arr2*  $\geq 0$

---

Name: *ndef2*  
Table: **Bull\_comp**  
Description: Number of time-defining phases for *orid2*.  
Format: number(8) External: i8  
NA Value: -1  
Range: *ndef2*  $\geq 0$

---

Name: *ndef2arr1*  
Table: **Bull\_comp**  
Description: Number of defining arrivals for *orid2* that are arrivals (defining or nondefining) for *orid1*.  
Format: number(8) External: i8  
NA Value: -1  
Range: *ndef2arr1*  $\geq 0$

---

Name: *ndp*  
Table: **Origin (Originref, Origin\_temp\_ga)**  
Description: Number of depth phases. This column gives the number of depth phases used in calculating depth/*depdp* (see *depdp*).  
Format: number(4) External: i4  
NA Value: -1  
Range: *ndp*  $\geq 0$

---

Name: *ndp\_snr\_pp*  
Table: **Evsc\_prod**  
Description: Number of pP depth phases meeting the snr criterion defined by *min\_dp\_snr\_pp* of table **Producttypeevsc**.  
Format: number(8) External: i8  
NA Value: -1  
Range: *ndp\_snr\_pp* > -1

---

Name: *ndp\_snr\_sp*  
Table: **Evsc\_prod**  
Description: Number of sP depth phases meeting the snr criterion defined by *min\_dp\_snr\_sp* of table **Producttypeevsc**.  
Format: number(8) External: i8  
NA Value: -1  
Range: *ndp\_snr\_sp* > -1

---

Name: *nearaz*  
Table: **Ev\_summary (Ex\_summary, An\_summary)**  
Description: Azimuth from nearest station to the event.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Units: degrees  
Range:  $0 \leq \text{nearaz} < 360.0$

**▼ S/H/I Column Descriptions**

---

Name: *neardist*  
Table: **Ev\_summary (Ex\_summary, An\_summary)**  
Description: Distance from the event to the closest station.  
Format: float(24) External: f8.3  
NA Value: -1.0  
Units: kilometers  
Range: *neardist* > 0.0

---

Name: *nearsta*  
Table: **Ev\_summary (Ex\_summary, An\_summary)**  
Description: Code for the nearest station to the event.  
Format: varchar2(6) External: a6  
NA Value: - (hyphen)  
Range: any valid station code

---

Name: *net*  
Table: **Affiliation (Stanet), Hydro\_arr\_group, Netmag, Network, Participation, Sitepoll, Weights**  
Description: Unique network identifier. This character string is the name of a seismic network. One example is **WWSSN**.  
Format: varchar2(8) External: a8  
varchar2(6) for **sitepoll**  
NA Value: NOT ALLOWED  
- (hyphen) for **netmag**  
Range: any string up to eight characters

---

Name: *netname*  
 Table: **Network**  
 Description: Network name. String containing the name of a network.  
 Format: varchar2(80) External: a80  
 NA Value: – (hyphen)  
 Range: any string up to 80 characters

---

Name: *nettype*  
 Table: **Network**  
 Description: Network type. This four-character string specifies the type of network (ar = array, lo = local area, ww = world-wide) for the given value of *net*.  
 Format: varchar2(4) External: a4  
 NA Value: – (hyphen)  
 Range: any lower-case string up to four characters

---

Name: *nevyr*  
 Table: **Seisgrid (Dseisgrid)**  
 Description: Average number of events per year with magnitude above *magth* whose location is within the grid cell defined by *icell*.  
 Format: float(24) External: f9.2  
 NA Value: NOT ALLOWED  
 Range: *nevyr* ≥ 0

---

Name: *nf*  
 Table: **Fsave, Fsdisc**  
 Description: Number of frequency values in the spectrum file.  
 Format: number(8) External: i4  
 NA Value: NOT ALLOWED  
 Range: *nf* > 0

---

**▼ S/H/I Column Descriptions**

---

Name: *nfft*  
Table: **Fsrecipe**  
Description: Number of data points in FFT.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *nfft* > 1

---

Name: *nhydarr*  
Table: **Hydro\_arr\_group**  
Description: Number of arrivals in the group.  
Format: number(4) External: i4  
NA Value: -1  
Range: *nhydarr* ≤ number of stations in the group

---

Name: *nlat*  
Table: **Seisindex (Dseisindex)**  
Description: Number of latitudes in **Seisgrid (Dseisgrid)**.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *nlat* > 0 . 0

---

Name: *nlon*  
Table: **Seisindex (Dseisindex)**  
Description: Number of longitudes in **Seisgrid (Dseisgrid)**.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *nlon* > 0 . 0

---

---

Name: *nmatch*  
Table: **Bull\_comp**  
Description: Number of matching arrivals (defining or nondefining) between *orid1* and *orid2*.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *nmatch*  $\geq 0$

---

Name: *nois*  
Table: **Siteaux**  
Description: Nominal background seismic noise level.  
Format: float(24) External: f10.1  
NA Value: -1.0  
Units: nanometers  
Range: *nois*  $\geq 0.0$

---

Name: *noise\_high\_band*  
Table: **Evsc\_hydro**  
Description: Hydroacoustic noise level in the high-frequency band (32–64 Hz) from table **amplitude** for a given *orid/sta* pair.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Units: dB re  $\mu$ Pa  
Range: *noise\_high\_band*  $> 0.0$

---

**▼ S/H/I Column Descriptions**

---

Name: *noissd*  
Table: **Fsave, Siteaux**  
Description: Standard deviation of the log noise amplitude.  
Format: float(24) External: f5.2  
NA Value: -999.0  
Range: *noissd* > 0.0

---

Name: *note\_missing\_data*  
Table: **Arch\_data\_type**  
Description: Missing data flag. If *y*, there are missing data for the *datatype* indicated in the **arch\_data\_type** table.  
Format: varchar2(2) External: a2  
NA Value: - (hyphen)  
Range: *note\_missing\_data* ∈ {y, n}

---

Name: *nsamp*  
Table: **Wfdisc (Wfproto)**  
Description: Number of samples. This quantity is the number of samples in a waveform segment.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *nsamp* > 0

---

Name: *nseg*  
Table: **Qcstats**  
Description: Number of masked segments in the detection processing interval.  
Format: number(8) External: i8  
NA Value: -1  
Range: *nseg* ≥ 0

---

Name: *nsta*  
 Table: **Ev\_summary (Ex\_summary, An\_summary), Netmag, Origaux**  
 Description: Number of stations. In **ev\_summary** this column is the number of stations with an associated arrival. In **netmag** this column is the number of stations contributing to the network magnitude estimate. In **origaux** this column is the number of defining stations.  
 Format: number(8) External: i8  
 NA Value: -1  
 Range: *nsta* > 0  
 $1 \leq nsta \leq 9999$  for **origaux**

---

Name: *nsta\_mb*  
 Table: **Evsc\_prod**  
 Description: Number of stations contributing to the  $m_b$  estimate used in event screening.  
 Format: number(8) External: i8  
 NA Value: -1  
 Range: *nsta\_mb* > -1

---

Name: *nsta\_ms*  
 Table: **Evsc\_prod**  
 Description: Number of stations contributing to the  $M_s$  estimate used for event screening.  
 Format: number(8) External: i8  
 NA Value: -1  
 Range: *nsta\_ms* > -1

---

**▼ S/H/I Column Descriptions**

---

Name: *num\_cross*  
Table: **Hydro\_features**  
Description: Number of times that the estimated signal pressure squared crosses *noise\_onset\_thresh* between *onset\_time* and *termination\_time*.  
Format: number(8) External: i8  
NA Value: -1  
Range: *num\_cross* > 0

---

Name: *numfailedattempt*  
Table: **Ftpfailed**  
Description: Number of failed attempts to retrieve message via FTP.  
Format: number(4) External: i4  
NA Value: 0  
Range: *numfailedattempt* > 0

---

Name: *nx*  
Table: **Fkdisc**  
Description: Total number of X sample points (either slowness or wavenumber, depending on *fktyp*) in a f-k spectrum.  
Format: number(4) External: i4  
NA Value: NOT ALLOWED  
Range: *nx* > 0

---

Name: *ny*  
Table: **Fkdisc**  
Description: Total number of Y sample points (either slowness or wavenumber, depending on *fktyp*) in a f-k spectrum.  
Format: number(4) External: i4  
NA Value: NOT ALLOWED  
Range: *ny* > 0

Name: *objtype*  
 Table: **Ga\_tag**  
 Description: Defines the *id* as either an *arid* (a) or an *orid* (o).  
 Format: varchar2(1) External: a1  
 NA Value: NOT ALLOWED  
 Range: *objtype* ∈ {a, o}

Name: *obsolete*  
 Table: **Fileproduct (Fs\_stageproduct)**  
 Description: Flag to indicate if the data in the **fileproduct** file are obsolete. 0 indicates that the data are not obsolete, and 1 indicates that the data are obsolete.  
 Format: number(1) External: i1  
 NA Value: NOT ALLOWED  
 Range: *obsolete* ∈ {0, 1}

Name: *offdate*  
 Table: **Arch\_data\_type, Chan\_groups, Exception\_chanmap, Regcoef, Site, Sitechan, Std\_chanmap, Subs, Weights**  
 Description: Turn off date. This column is the date after which the archive specifications, regional coefficient, station, sensor, or subscription indicated was no longer applicable, turned off, dismantled, or moved (see *ondate*).  
 Format: number(8) External: a17  
 date for **subs**.  
 NA Value: -1  
 Jan 1, 4700 for **subs**  
 Range: Julian date of the form yyyyddd  
 any valid oracle date for **subs**

## ▼ S/H/I Column Descriptions

---

Name:	<i>ondate</i>	
Table:	<b>Arch_data_type, Chan_groups, Exception_chanmap, Regcoef, Site, Sitechan, Std_chanmap, Subs, Weights</b>	
Description:	Turn on date. This column is the date on which the archive specifications, regional coefficient, station, sensor, or subscription indicated became applicable or began operating. <i>Offdate</i> and <i>ondate</i> are not intended to accommodate temporary downtimes, but rather to indicate the time period for which the columns of the station ( <i>lat</i> , <i>lon</i> , <i>elev</i> ) are valid for the given station code. Stations are often moved, but with the station code remaining unchanged.	
Format:	number(8) date for <b>subs</b>	External: a17
NA Value:	NOT ALLOWED	
Range:	Julian date of the form <i>yyyyddd</i> any valid oracle date for <b>subs</b>	

---

Name:	<i>onset_time</i>	
Table:	<b>Hydro_features</b>	
Description:	Estimated onset time of signal.	
Format:	float(53)	External: f17.5
NA Value:	NOT ALLOWED	
Units:	seconds	
Range:	any valid epoch time	

---

Name:	<i>orderby</i>	
Table:	<b>Seisindex (Dseisindex)</b>	
Description:	Grid order. The seismic grid can either be ordered by latitude or by longitude.	
Format:	varchar2(6)	External: a6
NA Value:	NOT ALLOWED	
Range:	<i>orderby</i> ∈ {lat, lon}	

---

Name: *orid*

Table: **Assoc** (*Assoc\_temp\_ga*), **Cepk**, **Complexity**, **Ev\_summary** (*Ex\_summary*, *An\_summary*), **Event\_control** (*In\_event\_control*), **Evsc\_hydro**, **Evsc\_prod**, **EvscRegional**, **Expl**, **Netmag**, **Origaux**, **Origerr** (*Origerr\_temp\_ga*), **Origin** (*Originref*, *Origin\_temp\_ga*), **Parrival**, **Request**, **Splp**, **Stamag**, **Timefreq**

Description: Origin identifier that relates a record in these tables to a record in the **origin** table. In the **disorigin** table, *orid* refers to the analyst origin corresponding to a dissolved expert system event.

Format: number(8) External: i8

NA Value: NOT ALLOWED  
–1 for **disorigin**, **origaux**

Range: *orid* > 0

---

Name: *orid1*

Table: **Bull\_comp**

Description: Origin identifier from the *bulletin1* database **Origin** (*Originref*, *Origin\_temp\_ga*) table.

Format: number(8) External: i8

NA Value: –1

Range: *orid1* > 0

---

Name: *orid2*

Table: **Bull\_comp**

Description: Origin identifier from the *bulletin2* database **Origin** (*Originref*, *Origin\_temp\_ga*) table.

Format: number(8) External: i8

NA Value: –1

Range: *orid2* > 0

**▼ S/H/I Column Descriptions**

---

Name: *otfixf*  
Table: **Origaux**  
Description: Flag designating that an origin time is fixed.  
Format: varchar2(1) External: a1  
NA Value: – (hyphen)  
Range:  $otfixf \in \{f\}$

---

Name: *otgid*  
Table: **Outage**  
Description: Outage identifier.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range:  $otgid > 0$

---

Name: *outauth*  
Table: **Wfconv**  
Description: Flag showing if output data are authenticated.  
Format: varchar2(1) External: a1  
NA Value: – (hyphen)  
Range:  $outauth \in \{y, n\}$

---

Name: *outcomp*  
Table: **Wfconv**  
Description: Output data compression type. The only type currently supported is Canadian compression (CA).  
Format: varchar2(2) External: a2  
NA Value: 0  
Range:  $outcomp \in \{CA\}$

---

---

Name: *outsamp*  
Table: **Wfconv**  
Description: Number of output samples per packet.  
Format: number(8) External: i8  
NA Value: 0  
Range: *outsamp* > 0

---

Name: *outtype*  
Table: **Wfconv**  
Description: Output fixed width datatype.  
Format: varchar2(2) External: a2  
NA Value: - (hyphen)  
Range: same as *datatype*

---

Name: *overlap*  
Table: **Fsrecipe**  
Description: Percent overlap of windows.  
Format: number(8) External: i3  
NA Value: NOT ALLOWED  
Range: 0 < *overlap* < 100

---

Name: *overlayid*  
Table: **Mapover, Overlaydisc**  
Description: Overlay identifier.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *overlayid* > 0

---

## ▼ S/H/I Column Descriptions

---

Name: *overlayname*  
Table: **Overlaydisc**  
Description: Name of the map overlay.  
Format: varchar2(64) External: a64  
NA Value: – (hyphen)  
Range: any free format character string up to 64 characters

---

Name: *paleodepth*  
Table: **Expl0**  
Description: Depth to the Paleozoic layer, measured from the surface.  
Format: float(24) External: f7.4  
NA Value: –1  
Units: kilometers  
Range:  $p\text{aldep} \geq 0.0$

---

Name: *parid*  
Table: **Amplitude, Parrival**  
Description: Predicted arrival identifier. Every event-based **parrival** measure is assigned a unique positive integer that identifies it in the database. If an associated **amplitude** record exists, then **parid** links it to **parrival**.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
–1 for **amplitude**  
Range:  $parid > 0$

---

Name: *partition*  
Table: **Dfile**  
Description: Disk partition name.  
Format: varchar2(64) External: a64  
NA Value: NOT ALLOWED  
Range: any string up to 64 characters that is a valid disk partition

---

Name: *password*  
Table: **Ftplogin**  
Description: Password for remote FTP site for pushing data messages from PIDC.  
Format: varchar2(16) External: a16  
NA Value: NOT ALLOWED  
Range: any string up to 16 characters

---

Name: *pctoffsh*  
Table: **Evsc\_prod**  
Description: Percentage of location error ellipse that is determined to be offshore.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Range: 0.0 ≤ *pctoffsh* < 100.0

---

Name: *peak\_level*  
Table: **Hydro\_features**  
Description: Pressure of largest absolute signal value.  
Format: float(24) External: f9.4  
NA Value: -1.0  
Units: dB re μPa  
Range: *peak\_level* ≥ 0.0

**▼ S/H/I Column Descriptions**

---

Name: *peak\_time*  
Table: **Hydro\_features**  
Description: Epoch time of largest absolute signal value.  
Format: float(53) External: f17.5  
NA Value: NOT ALLOWED  
Units: seconds  
Range: any valid epoch time

---

Name: *per*  
Table: **Amplitude, Arrival**  
Description: Measured period at the time of the amplitude measurement.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: seconds  
Range: *per > 0.0*

---

Name: *phase*  
Table: **Allow\_resid, Apma, Assoc (Assoc\_temp\_ga), Complexity, Parrival, Stamag, Weights**  
Description: Phase type. The identity of a phase that has been associated to an arrival. Standard labels for phases are used (for example, P, PKP, PcP, pP, and so on). Both upper- and lower-case letters are available and should be used when appropriate; for example, pP or PcP.  
Format: varchar2(8), varchar2(6) for complexity External: a8  
NA Value: - (hyphen) if this column does not apply to seismic phases  
Range: any string up to eight characters that conforms to scientific practice

Name: *pkamp*  
 Table: **Ceppks**  
 Description: Amplitude of consistent cepstral peak. This column value is set to zero if there are no consistent peaks.  
 Format: float(24) External: f7.5  
 NA Value: 0.0  
 Units: nanometer-seconds  
 Range: *pkamp* > 0.0

Name: *pkqf*  
 Table: **Ceppks**  
 Description: Frequency of consistent cepstral peak. This column value is set to zero if no consistent peaks exist.  
 Format: float(24) External: f8.4  
 NA Value: 0.0  
 Units: seconds  
 Range: *pkqf* > 0.0

Name: *planlr*  
 Table: **Apma**  
 Description: Planarity of an S-type polarization column defined as  $1 - l_3/l_2$ , where  $l_2$  and  $l_3$  are eigenvalues from the decomposition of the covariance matrix. Planarity is measured at the time of maximum 3-component amplitude.  
 Format: float(24) External: f7.2  
 NA Value: -1.0  
 Range:  $0.0 \leq planlr \leq 1.0$

**▼ S/H/I Column Descriptions**

---

Name: *plans*  
Table: **Apma**  
Description: Planarity of an S-type polarization column defined as  $1 - l_3/l_2$ , where  $l_2$  and  $l_3$  are eigenvalues from the decomposition of the covariance matrix. Planarity is measured at the time of maximum 3-component amplitude. The only difference between *plans* and *planlr* is in the definition of the overlapping time windows.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Range:  $0.0 \leq plans \leq 1.0$

---

Name: *plid*  
Table: **Problemlog**  
Description: Problem log identifier.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *plid* > 0

---

Name: *pn\_snr*  
Table: **Evsc\_regional**  
Description: Signal-to-noise ratio of the Pn measurement.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Range: *pn\_snr* > 0.0

---

Name: *pnlg*  
 Table: **Evsc\_regional**  
 Description: Logarithm (base 10) of the distance corrected Pn/Lg ratio.  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Range: *pnlg* > -999.0

---

Name: *pnlg\_qual*  
 Table: **Evsc\_regional**  
 Description: Data quality indicator for the Pn/Lg measurement. A string of zeros indicates good data quality. See quality flag note for *pnsn\_qual*.  
 Format: varchar2(10) External: a10  
 NA Value: - (hyphen)  
 Range: any valid ORACLE string

---

Name: *pnsmax*  
 Table: **Evsc\_regional**  
 Description: Maximum of the Pn/Sn and Pn/Lg ratios.  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Range: *pnsmax* > -999.0

---

Name: *pnsmax\_corr*  
 Table: **Evsc\_regional**  
 Description: Correction term of the maximum of the Pn/Sn and Pn/Lg ratios.  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Range: *pnsmax\_corr* > -999.0

**▼ S/H/I Column Descriptions**

---

Name: *pnsmax\_err*  
Table: **Evsc\_regional**  
Description: Standard error of the maximum of the Pn/Sn and Pn/Lg ratios.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Range: *pnsmax\_err* > -999.0

---

Name: *pnsn*  
Table: **Evsc\_regional**  
Description: Logarithm (base 10) of the distance-corrected Pn/Sn amplitude ratio.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Range: *pnsn* > -999.0

---

Name: *pnsn\_qual*  
Table: **Evsc\_regional**  
Description: Data quality indicator for the Pn/Sn amplitude ratio measurement. A string of zeros indicates good data quality. Each position in the quality string indicates the state of data quality test. A '0' character indicates the data passed the test, a '1' indicates the data failed the test. Reading from left-to-right, the test indicators are ordered as follows:  
1. Missing data - '1' indicates that Pn, Sn, Lg signal or noise values are not available for the calculation.  
2. Signal-to-noise - '1' indicates that the snr for a given amplitude ratio does not satisfy the input criteria.  
3. No distance correction - '1' indicates that there is no distance correction data available to apply to this amplitude ratio (see **Attencoef**).  
4. Exceeds valid range of distance correction - '1' indicates the event is outside the valid range of applicability for the distance correction given in **Attencoef**.  
5. No correction grid file - '1' indicates there is no correction grid file provided for the station under consideration.  
6. Exceeds valid range of correction grid file - '1' indicates the event is outside the valid range of the correction grid file provided for the station.

7. Spare field (not currently used) - set to '0'.
8. Anomalous data value - '1' indicates an anomalous regional phase amplitude measurement, invalidating the P/S measurement.

Format: varchar2(10) External: a10  
 NA Value: - (hyphen)  
 Range: any valid ORACLE string

---

Name: *pocid*  
 Table: **Datauser, Subsuser**  
 Description: Point of contact identifier.  
 Format: number(8) External: i8  
 NA Value: -1  
 Range: *pocid* > 0

---

Name: *pointspike*  
 Table: **Qcstats**  
 Description: Amount of data in the detection processing interval masked due to point-spikes.  
 Format: float(53) External: f17.5  
 NA Value: -999.0  
 Units: seconds  
 Range: *pointspike* ≥ 0 . 0

---

Name: *port*  
 Table: **Fwsite**  
 Description: Port on which the connection manager is listening.  
 Format: number(6) External: i8  
 NA Value: -1  
 Range: 1 < *port* < 16383

---

**▼ S/H/I Column Descriptions**

---

Name: *prefdlid*  
Table: **Alphasite**  
Description: *dlid* for preferred *DLMAN* for a given station.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *prefdlid* > 0

---

Name: *prefer\_loc*  
Table: **Event\_control (In\_event\_control)**  
Description: Preferred location identifier. This column indicates which of three possible location solutions is the chosen location. The hypocenter can be either held to a surface location (S), determined with no constraints at all (free depth, F), or restrained based on the settings of *constrain\_ot*, *constrain\_latlon*, and *constrain\_depth*, (R). The constrained location (R) can be fixed in origin time/latitude and longitude/depth. *PREFER\_loc* takes precedence to the actual constraint settings (*constrain\_ot*, *constrain\_latlon*, and *constrain\_depth*) when *prefer\_loc* indicates a surface (S) or free depth (F) location. Default is "S."  
Format: varchar2(1) External: a1  
NA Value: - (hyphen)  
Range: *prefer\_loc* ∈ {F, S, R}

---

Name: *prefor*  
Table: **Event**  
Description: Preferred origin. This column holds the origin identifier (*orid*) that points to the preferred origin for a seismic event.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *prefor* > 0

---

Name: *prefport*  
 Table: **Alphasite**  
 Description: Preferred network port for a given station.  
 Format: number(6) External: i8  
 NA Value: 0  
 Range:  $1 \leq \text{prefport} \leq 16383$

---

Name: *prid*  
 Table: **Problem, Problemlog**  
 Description: Problem identifier.  
 Format: number(8) External: i8  
 NA Value: NOT ALLOWED  
 Range:  $\text{prid} > 0$

---

Name: *primarykey*  
 Table: **Arch\_data\_type**  
 Description: Not used.  
 Format: varchar2(24) External: a24  
 NA Value: – (hyphen)  
 Range: any string up to 24 characters

---

Name: *primp*  
 Table: **Ev\_summary (Ex\_summary, An\_summary)**  
 Description: Number of primary time-defining phases. A primary phase is defined as the first phase for a given station belonging to the set (P, Pn, Pg, PKP, PKPdf).  
 Format: number(8) External: i8  
 NA Value: –1  
 Range:  $\text{primp} \geq 0$

**▼ S/H/I Column Descriptions**

---

Name: *priority*  
Table: **Datauser, Fwsite, Subsuser**  
Description: Priority assigned to process.  
Format: number(2) External: i2  
NA Value: -1  
NOT ALLOWED for **datauser**  
Range: *priority* > 0

---

Name: *prob\_weight\_time*  
Table: **Hydro\_features**  
Description: Probability weighted time. The weight for a sample is the probability that the sample's amplitude is the maximum amplitude associated with the arrival within the frequency band defined by *low\_cut*, *high\_cut*, *ford*, and *ftype*.  
Format: float(53) External: f17.5  
NA Value: -999.0  
Units: seconds  
Range: any valid epoch time

---

Name: *procclass*  
Table: **Mig\_date, Problem, Problemmail, Timestamp**  
Description: Process class used to group processes.  
Format: varchar2(16) External: a16  
varchar2(17) for **problem, problemmail**  
NA Value: NOT ALLOWED  
Range: any string (upper case for **mig\_date**) up to 16 characters

---

Name: *procname*  
 Table: **Mig\_date, Problem, Timestamp**  
 Description: Process name that identifies a process within a process class.  
 Format: varchar2(16) External: a16  
           varchar2(17) for **problem**  
 NA Value: NOT ALLOWED  
 Range: any string (upper case for **mig\_date**) up to character limit

---

Name: *prodfmt*  
 Table: **Productcriteria**  
 Description: Product format.  
 Format: varchar2(6) External: a6  
 NA Value: – (hyphen)  
 Range: *prodfmt* ∈ {GSE2.0, IMS1.0}

---

Name: *prodid*  
 Table: **Evsc\_prod, Prodtrack, Productcriteria, Producttypeevsc, Producttypeorigin, Producttypesta, Subs**  
 Description: Product identifier.  
 Format: number(8) External: i8  
 NA Value: –1  
 Range: *prodid* > 0

---

Name: *prodname*  
 Table: **Productcriteria**  
 Description: Name of the product.  
 Format: varchar2(24) External: a24  
 NA Value: – (hyphen)  
 Range: any valid string up to 24 characters

**▼ S/H/I Column Descriptions**

---

Name: *prodsubtype*  
Table: **Productcriteria**  
Description: Subtype of the product.  
Format: varchar2(12) External: a12  
NA Value: – (hyphen)  
Range: *prodsubtype* ∈ {sel1, sel2, sel3, reb, and so on}

---

Name: *prodtype*  
Table: **Fpdescription, Productcriteria**  
Description: Product type.  
Format: varchar2(12) External: a12  
varchar2(32) for **productcriteria**  
NA Value: – (hyphen)  
Range: *prodtype* ∈ {origin, event, bulletin, arrival, detection, waveform}

---

Name: *projection*  
Table: **Mapdisc**  
Description: Projection of the *Map*; a positive integer enumerator for uniquely classifying the stereographic projection of the *Map*. Azimuthal equidistant = 2; Mercator = 3.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *projection* ∈ {2, 3}

Name: *pftime*  
 Table: **Apma**  
 Description: Epoch time at which P-type polarization columns are estimated. This column value is the center of the time window with maximum rectilinearity.  
 Format: float(53) External: f17.5  
 NA Value: -999999999.999  
 Units: seconds  
 Range: any valid epoch time

Name: *ptmcor*  
 Table: **Siteaux**  
 Description: P-wave arrival time correction.  
 Format: float(24) External: f6.3  
 NA Value: -999.0  
 Units: seconds  
 Range: *ptmcor* > -999.0

Name: *ptyp*  
 Table: **Ceppls**  
 Description: Consistent cepstral peak type. This column is FC-PHS if consistent Fourier cepstral peaks are found across two or more phases for one array and no peak is in the noise cepstrum at this quefrency. Otherwise, it is "-" if no consistent cepstral peaks are found.  
 Format: varchar2(6) External: a6  
 NA Value: - (hyphen)  
 Range: *ptyp* ∈ {FC-PHS}

**▼ S/H/I Column Descriptions**

---

Name: *qcstatsid*  
Table: **Qcstats**  
Description: Data quality statistics identifier.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *qcstatsid* > 0 . 0

---

Name: *qual*  
Table: **Arrival**  
Description: Onset quality. This single-character flag is used to denote the sharpness of the onset of a seismic phase. This relates to the timing accuracy as follows:  
i (impulsive) – accurate to ±0.2 seconds  
e (emergent) – accuracy between ±(0.2 to 1.0 seconds)  
w (weak) – timing uncertain to > 1 second  
Format: varchar (1) External: a1  
NA Value: – (hyphen)  
Range: *qual* ∈ {i, e, w}

---

Name: *quer\_seq\_no*  
Table: **Mig\_rules**  
Description: Order of this part of the query for data migration.  
Format: number External: i4  
NA Value: NOT ALLOWED  
Range: *quer\_seq\_no* ≥ 1

---

Name: *query\_type*  
 Table: **Mig\_rules**  
 Description: Type of query for data migration.  
 Format: varchar2(20) External: a20  
 NA Value: NOT ALLOWED  
 Range: *query\_type* ∈ {COMMIT, CREATE\_TABLE, DELETE, DROP\_TABLE,  
     SELECT\_INSERT}

---

Name: *ratio*  
 Table: **Splp**  
 Description: Ratio of short-period to long-period energy.  
 Format: float(24) External: f10.8  
 NA Value: NOT ALLOWED  
 Range: *ratio* > 0

---

Name: *ratiotype*  
 Table: **Attencoef**  
 Description: Amplitude ratio type. This identifies the type of P/S amplitude ratio (for example, Pn/Lg or Pn/Sn) for which the attenuation coefficients apply.  
 Format: varchar2(6) External: a6  
 NA Value: – (hyphen)  
 Range: any valid string up to 6 characters

---

Name: *rcoefid*  
 Table: **Regcoef**  
 Description: Linear coefficient set identifier.  
 Format: varchar2(20) External: a20  
 NA Value: – (hyphen)  
 Range: any valid string up to 20 characters

## ▼ S/H/I Column Descriptions

Name: *rcoeftype*  
 Table: **Regcoef**  
 Description: Type of linear weighting coefficient used in regional P/S screening criterion.  
 Format: varchar2(10) External: a10  
 NA Value: – (hyphen)  
 Range: any valid string up to 10 characters

Name: *rcoefvalue*  
 Table: **Regcoef**  
 Description: Value of linear weighting coefficient used in regional P/S screening criterion. Identified by *rcoeftype*.  
 Format: float(24) External: f7.2  
 NA Value: –999.0  
 Range: any valid floating point value

Name: *rdepthp*  
 Table: **Ex\_an**  
 Description: Number of depth phases renamed by the analyst (see *ddepthp* for definition of depth phase).  
 Format: number(8) External: i8  
 NA Value: –999  
 Range: *rdepthp* > 0

Name: *reaptime*  
 Table: **Dlfile**  
 Description: Time at which the contents of the disk loop file may be discarded and the file re-used.  
 Format: float(53) External: f17.5  
 NA Value: 0 . 0  
 Range: any valid epoch time > 0 . 0

Name: *reason*  
 Table: **Discard**  
 Description: Reason an automated system event was discarded by an analyst.  
 Format: varchar2(30) External: a30  
 NA Value: NOT ALLOWED  
 Range: any string up to 30 characters

Name: *rect*  
 Table: **Apma, Arrival**  
 Description: Signal rectilinearity defined as

$$1 - (l_3 + l_2)/2l_1$$

where  $l_1$ ,  $l_2$ , and  $l_3$  are the three eigenvalues from the decomposition of the covariance matrix. This column value is the maximum rectilinearity for all overlapping time windows.

Format: float(24) External: f7.3  
 NA Value: -1 . 0  
 Range: 0 . 0 ≤ *rect* ≤ 1 . 0

**▼ S/H/I Column Descriptions**

---

Name: *rectype*  
Table: **Complexity, Splp, Thirdmom, Timefreq**  
Description: Recipe type. This term identifies the algorithm used to calculate the parameter.  
Format: varchar2(8) External: a8  
NA Value: – (hyphen)  
NOT ALLOWED for **timefreq, thirdmom**  
Range: any string up to eight characters

---

Name: *refaz*  
Table: **Ev\_summary (Ex\_summary, An\_summary)**  
Description: Azimuth to nearest reference point (reference locations are stored in the **Ref\_loc** table).  
Format: float(24) External: f7.2  
NA Value: –1.0  
Units: degrees  
Range:  $0.0 \leq refaz < 360.0$

---

Name: *refdist*  
Table: **Ev\_summary (Ex\_summary, An\_summary)**  
Description: Distance to nearest reference point (reference locations are stored in the **Ref\_loc** table).  
Format: float(24) External: f8.3  
NA Value: –1.0  
Units: kilometers  
Range:  $refdist \geq 0.0$

---

Name: *refid*  
Table: **Ev\_summary (Ex\_summary, An\_summary), Ref\_loc**  
Description: Reference location identifier.  
Format: number(8) External: i8  
NA Value: -1  
Range: *refid* > 0

---

Name: *reflat*  
Table: **Mapdisc**  
Description: Latitude reference; latitude of the center of the *Map* application's projection (used for azimuthal equidistant projections only).  
Format: float(24) External: f9.4  
NA Value: -999.0  
Units: degrees  
Range: -90.0 ≤ *reflat* ≤ 90.0

---

Name: *reflon*  
Table: **Mapdisc**  
Description: Longitude reference. Longitude of the center of the *Map* application's projection (used for azimuthal equidistant projections only).  
Format: float(24) External: f9.4  
NA Value: -999.0  
Units: degrees  
Range: -180.0 ≤ *reflon* ≤ 180.0

**▼ S/H/I Column Descriptions**

---

Name: *refname*  
Table: **Ref\_loc**  
Description: Reference location name.  
Format: varchar2(16) External: a16  
NA Value: NOT ALLOWED  
Range: any upper case string up to 16 characters

---

Name: *reoffsetlat*  
Table: **Mapdisc**  
Description: Latitude offset reference. This column value is the reference (in pixels) from the lower left corner of the map to the center of the *Map* application's projection. In the case where the reference point is at the center of the map, the offsets are equal to half the map width and height. For azimuthal equidistant projections only.  
Format: float(24) External: f9.4  
NA Value: -1.0  
Units: pixels  
Range: *reoffsetlat* > 0

---

Name: *reoffsetlon*  
Table: **Mapdisc**  
Description: Longitude offset reference. This column value is the reference (in pixels) from the lower left corner of the map to the center of the *Map* application's projection. For azimuthal equidistant projections only.  
Format: float(24) External: f9.4  
NA Value: -1.0  
Units: pixels  
Range: *reoffsetlon* > 0

---

Name: *refsta*  
 Table: **Site**  
 Description: Reference station. This string specifies the reference station with respect to which array members are located (see *deast*, *dnorth*).  
 Format: varchar2(6) External: a6  
 NA Value: – (hyphen)  
 Range: any *sta* from tables

---

Name: *reg\_conf*  
 Table: **Productypeevsc**  
 Description: Confidence level of the regional seismic P/S screening criterion.  
 Format: float(24) External: f7.2  
 NA Value: –999.0  
 Range: 0.0 < *reg\_conf* < 1.0

---

Name: *regname*  
 Table: **Productypeevsc**  
 Description: Region name for subscriptions.  
 Format: varchar2(24) External: a24  
 NA Value: – (hyphen)  
 Range: any valid string up to 24 characters

---

Name: *rely*  
 Table: **Siteaux**  
 Description: Station reliability. This column is an estimate of the percentage of time that the station is up.  
 Format: float(24) External: f5.2  
 NA Value: –1.0  
 Range: 0.0 ≤ *rely* ≤ 1.0

**▼ S/H/I Column Descriptions**

---

Name: *remark*  
Table: **Remark**  
Description: Descriptive text. This single line of text is an arbitrary comment about a record in the database. The comment is linked to its parent table only by forward reference from *commid* in the record of the table of interest (see *commid, lineno*).  
Format: varchar2(80) External: a80  
NA Value: – (hyphen)  
Range: any string up to 80 characters

---

Name: *reqid*  
Table: **Request**  
Description: Request identifier. Unique key to allow tracking of requests by the *Message Subsystem*.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *reqid* > 0

---

Name: *requestor*  
Table: **Request**  
Description: Original requestor of this data. The requestor is the person or program that requests this waveform data.  
Format: varchar2(15) External: i15  
NA Value: – (hyphen)  
Range: any string up to 15 characters

---

Name: *response*  
Table: **Fsrecipe**  
Description: Flag specifying instrument response function.  
Format: varchar2(1) External: a1  
NA Value: NOT ALLOWED  
Range: *response* ∈ {y, n}

---

Name: *retime*  
Table: **Ex\_an**  
Description: Number of phases re-timed by an analyst.  
Format: number(8) External: i8  
NA Value: -1  
Range: *retime* ≥ 0

---

Name: *revfunction*  
Table: **Revaudit**  
Description: Name of the revision function used.  
Format: varchar2(32) External: a32  
NA Value: NOT ALLOWED  
Range: any function name in *rebrevise*

---

Name: *revid*  
Table: **Revaudit**  
Description: Revision identifier.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *revid* > 0

**▼ S/H/I Column Descriptions**

---

Name: *revision*  
Table: **Fileproduct (Fs\_stageproduct)**  
Description: Revision number of a file product.  
Format: number(4) External: i4  
NA Value: -1  
Range: *revision* > 0

---

Name: *revstate*  
Table: **Revaudit**  
Description: State of the revision.  
Format: varchar2(16) External: a16  
NA Value: NOT ALLOWED  
Range: *revstate* ∈ {DONE | FAILED | ABORTED}

---

Name: *revtagid1*  
Table: **Revaudit**  
Description: Value of the foreign key named in *revtagname1*.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *revtagid1* > 0

---

Name: *revtagid2*  
Table: **Revaudit**  
Description: Value of the foreign key named in *revtagname2*.  
Format: number(8) External: i8  
NA Value: -1  
Range: *revtagid2* > 0

---

---

Name: *revtagname1*  
Table: **Revaudit**  
Description: Name of the foreign key whose value is in *revtagid1*.  
Format: varchar2(8) External: a8  
NA Value: NOT ALLOWED  
Range: *revtagname1* ∈ {valid identifier}

---

Name: *revtagname2*  
Table: **Revaudit**  
Description: Name of the foreign key whose value is in *revtagid2*.  
Format: varchar2(8) External: a8  
NA Value: – (hyphen)  
Range: *revtagname2* ∈ {valid identifier}

---

Name: *rid*  
Table: **Amp3c**  
Description: Recipe identifier.  
Format: varchar2(8) External: a8  
NA Value: – (hyphen)  
Range: any string up to eight characters long

**▼ S/H/I Column Descriptions**

---

Name: *rotation*  
Table: **Mapdisc**  
Description: Map rotation. This is the rotation of the projection from 0°, or due north. Rotation specifies the azimuth of the y-raster in degrees clockwise from north (for azimuthal equidistant projections only).  
Format: float(24) External: f9.4  
NA Value: -1.0  
Units: degrees  
Range: 0.0 ≤ *rotation* < 360.0

---

Name: *rprimp*  
Table: **Ex\_an**  
Description: Number of primary phases renamed by the analyst (see *dprimp* for definition of primary phase).  
Format: number(8) External: i8  
NA Value: -1  
Range: *rprimp* ≥ 0

---

Name: *rscore*  
Table: **Evsc\_prod**  
Description: Score for the regional seismic P/S event-screening criterion.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Range: *rscore* > -999.0

---

Name: *rsecondp*  
 Table: **Ex\_an**  
 Description: Number of secondary phases renamed by the analyst (see *dsecondp* for definition of secondary phase).  
 Format: number(8) External: i8  
 NA Value: -1  
 Range: *rsecondp* ≥ 0

---

Name: *rspstype*  
 Table: **Instrument**  
 Description: Instrument response type. The column value denotes the style in which detailed calibration data are stored. The neighboring column *dfile* tells where the calibration data are saved. *Rspstype* = *paz* indicates the data are the poles and zeroes of the Laplace transform. *Rspstype* = *fap* indicates the data are amplitude/phase values at a range of frequencies. *Rspstype* = *fir* indicates that the response type is a finite impulse response table. *Rspstype* = *pazfir* indicates a combination of poles, zeros, and finite impulse response. Other codes may be defined.  
 Format: varchar2(6) External: a6  
 NA Value: NOT ALLOWED  
 Range: any lower-case string up to six characters

---

Name: *rsta*  
 Table: **Ev\_summary (Ex\_summary, An\_summary)**  
 Description: Number of nonarray regional arrival times. "Regional" is defined as a station-event distance not less than 250 km and up to 2000 km.  
 Format: number(8) External: i8  
 NA Value: -1  
 Range: *rsta* ≥ 0

**▼ S/H/I Column Descriptions**

---

Name: *running*  
Table: **Dlman**  
Description: Flag indicating whether or not *DLMan* is running.  
Format: varchar2(1) External: a1  
NA Value: – (hyphen)  
Range: *running* ∈ {y, n}

---

Name: *samprate*  
Table: **Instrument, Wfdisc (Wfproto)**  
Description: Sampling rate. This column is the sample rate in samples/second. In the **instrument** table, the column value is specifically the nominal sample rate, not accounting for clock drift. In **wfdisc**, the value may vary slightly from the nominal to reflect clock drift.  
Format: float(24) External: f11.7  
NA Value: NOT ALLOWED  
Units: 1/seconds  
Range: *samprate* > 0.0

---

Name: *scale*  
Table: **Mapdisc**  
Description: Map scale.  
Format: float(24) External: f9.4  
NA Value: –1.0  
Units: radians per pixel for mercator projections; kilometers per pixel for azimuthal equidistant projections  
Range: *scale* > 0

---

Name: *scan*  
Table: **Scan\_date**  
Description: Status of analyst scanning for missed events.  
Format: varchar2(1) External: a1  
NA Value: NOT ALLOWED  
Range: *scan* ∈ {y, n}

---

Name: *score*  
Table: **Evsc\_prod**  
Description: Composite event-screening score. This score numerically indicates the degree to which a particular event meets or does not meet the combined screening criteria.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Range: *score* > -999.0

---

Name: *sdepth*  
Table: **Origerr (Origerr\_temp\_ga)**  
Description: Depth error. This is the maximum error of a depth estimate for a level of confidence given by *conf* (see *smajax*, *sminax*, and *sxx*, *syy*, *szz*, *stt*, *sxy*, *sxz*, *syz*, *stx*, *sty*, *stz*).  
Format: float(24) External: f9.4  
NA Value: -1.0  
Units: kilometers  
Range: *sdepth* > 0.0

## ▼ S/H/I Column Descriptions

---

Name: *sdobs*

Table: **Origerr (Origerr\_temp\_ga)**

Description: Standard error of one observation. This column is derived from the discrepancies in the arrival times of the phases used to locate an event. This column is defined as the square root of the sum of the squares of the time residuals divided by the number of degrees of freedom. The latter is the number of defining observations (*ndef* in **Origin (Originref, Origin\_temp\_ga)**) minus the dimension of the system solved (4 if depth is allowed to be a free variable, 3 if depth is constrained).

Format: float(24) External: f9.4

NA Value: -1.0

Range: *sdobs* > 0.0

---

Name: *seaz*

Table: **Assoc (Assoc\_temp\_ga), Detection**

Description: Station-to-event azimuth calculated from the station and event locations and measured clockwise from north.

Format: float(24) External: f7.2

NA Value: -999.0

Units: degrees

Range: 0.0 ≤ *seaz* ≤ 360.0

---

Name: *seazlr*  
Table: **Apma**  
Description: Azimuth of the eigenvector ( $e_3$ ) associated with the smallest eigenvalue ( $\lambda_3$ ). This column is corrected by  $180^\circ$  to give an estimate of the station-to-event azimuth (with an  $180^\circ$  ambiguity). This column is an S-type column calculated at the time of the maximum 3-component amplitude. The only difference between *seazs* and *seazlr* is in the definition of the overlapping time windows.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: degrees  
Range:  $0.0 \leq seazlr \leq 360.0$

---

Name: *seazp*  
Table: **Apma**  
Description: Azimuth of the eigenvector ( $e_1$ ) associated with the largest eigenvalue ( $\lambda_1$ ). The column value is corrected by  $180^\circ$  to give an estimate of the station-to-event azimuth. This P-type value is calculated at the time of maximum rectilinearity.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: degrees  
Range:  $0.0 \leq seazp \leq 360.0$

**▼ S/H/I Column Descriptions**

---

Name: *seazs*  
Table: **Apma**  
Description: Azimuth of the eigenvector ( $e_3$ ) associated with the smallest eigenvalue ( $\lambda_3$ ). This column is corrected by  $180^\circ$  to give an estimate of the station-to-event azimuth (with an  $180^\circ$  ambiguity). This column is an S-type column calculated at the time of the maximum 3-component amplitude. The only difference between *seazs* and *seaz/r* is in the definition of the overlapping time windows.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: degrees  
Range:  $0.0 \leq seazs \leq 360.0$

---

Name: *secondkey*  
Table: **Arch\_data\_type**  
Description: Not used.  
Format: varchar2(24) External: a24  
NA Value: - (hyphen)  
Range: any string up to 24 characters

---

Name: *secondp*  
Table: **Ev\_summary (Ex\_summary, An\_summary)**  
Description: Number of time-defining secondary phases. A secondary phase is any phase not in the set (P, Pn, Ps, PkP, PKPdf).  
Format: number(8) External: i8  
NA Value: -1  
Range:  $secondp \geq 0$

---

Name: *segtype*  
Table: **Wfdisc (Wfproto)**  
Description: Segment type. This column indicates if a waveform is o (original), v (virtual), s (segmented), or d (duplicate).  
Format: varchar2(1) External: a1  
NA Value: – (hyphen)  
Range: *segtype* ∈ {o, v, s, d}

---

Name: *seq\_contents*  
Table: **Mig\_rules**  
Description: Contents of a query for data migration.  
Format: varchar2(200) External: a200  
NA Value: NOT ALLOWED  
Range: any string up to 200 characters that is a valid SQL query

---

Name: *seq\_type*  
Table: **Mig\_rules**  
Description: Type of sequence to be added to the query.  
Format: varchar2(15) External: a15  
NA Value: NOT ALLOWED  
Range: *seq\_type* ∈ {END\_LDDATE, START\_LDDATE, TEXT}

**▼ S/H/I Column Descriptions**

---

Name: *servicetime*  
Table: **Datauser**  
Description: Last time a request from the user with the *userid* in the **datauser** table was serviced.  
Format: float(53) External: f17.5  
NA Value: -999999999.999  
Units: seconds  
Range: *servicetime* ≥ 0

---

Name: *sigma\_time*  
Table: **Hydro\_features**  
Description: Standard deviation of the probability weighted time.  
Format: float(53) External: f17.5  
NA Value: -999.0  
Range: *sigma\_time* ≥ 0

---

Name: *sigtype*  
Table: **Msgdisc**  
Description: Digital signature type.  
Format: varchar2(64) External: a64  
NA Value: - (hyphen)  
Range: ASCII character string

---

Name: *skewness*  
 Table: **Hydro\_features**  
 Description: Skew of the estimated signal energy between *onset\_time* and *termination\_time*.  
 Format: float(24) External: f9.4  
 NA Value: -999999999.999  
 Range: -10000000.0 < *skewness* < 10000000.0

---

Name: *slodef*  
 Table: **Assoc (Assoc\_temp\_ga)**  
 Description: Slowness defining code. This one-character flag indicates whether or not the slowness of a phase was used to constrain the event location. This column is defining (*slodef* = d) or nondefining (*slodef* = n) for this arrival.  
 Format: varchar2(1) External: a1  
 NA Value: - (hyphen)  
 Range: *slodef* ∈ {d, n}

---

Name: *slores*  
 Table: **Allow\_resid, Assoc (Assoc\_temp\_ga)**  
 Description: Slowness residual. This column gives the difference between an observed slowness and a theoretical prediction. The prediction is calculated for the related phase and event origin described in the record.  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Units: seconds/degree  
 Range: *slores* > -999.0

## ▼ S/H/I Column Descriptions

---

Name: *slow*  
Table: **Arrival, Detection, Hydro\_arr\_group, Parrival**  
Description: Observed slowness of a detected arrival. Units are seconds/kilometer in **detection**, seconds/degree in **arrival** and **parrival**.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Range: *slow* ≥ 0.0

---

Name: *smaj\_sc*  
Table: **Evsc\_prod**  
Description: Semi-major axis of error ellipse, used for onshore/offshore determination, for a confidence level given by *loc\_conf* of table **Producttypeevsc**.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Units: kilometers  
Range: *smaj\_sc* > 0.0

---

Name: *smajax*  
Table: **Origerr (Origerr\_temp\_ga)**  
Description: Semi-major axis of error ellipse for a given confidence. The column value is the length of the semi-major axis of the location error ellipse. The value is found by projecting the covariance matrix onto the horizontal plane. The level of confidence is specified by *conf* (see *sdepth*, *sminax*, and *sxx*, *syy*, *szz*, *stt*, *sxy*, *sxz*, *syz*, *stx*, *sty*, *stz*).  
Format: float(24) External: f9.4  
NA Value: -1.0  
Units: kilometers  
Range: *smajax* > 0.0

---

Name: *smin\_sc*  
 Table: **Evsc\_prod**  
 Description: Semi-minor axis of error ellipse, used for onshore/offshore determination, for a confidence level given by *loc\_conf* of table **Producttypeevsc**.  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Units: kilometers  
 Range: *smin\_sc* > 0.0

---

Name: *sminax*  
 Table: **Origerr (Origerr\_temp\_ga)**  
 Description: Semi-minor axis of error ellipse. The column value is the length of the semi-minor axis of the location error ellipse. The value is found by projecting the covariance matrix onto the horizontal plane. The level of confidence is specified by *conf* (see *sdepth*, *smajax*, and *sxx*, *syy*, *szz*, *stt*, *sxy*, *sxz*, *syz*, *stx*, *sty*, *stz*).  
 Format: float(24) External: f9.4  
 NA Value: -1.0  
 Units: kilometers  
 Range: *sminax* > 0.0

---

Name: *smoothvalue*  
 Table: **Fsrecipe**  
 Description: Amount of spectral smoothing.  
 Format: float(24) External: f5.2  
 NA Value: -1.0  
 Units: Hertz  
 Range: *smoothvalue* > 0.0

---

## ▼ S/H/I Column Descriptions

---

Name: *sn\_snr*  
Table: **EvscRegional**  
Description: Signal-to-noise ratio of the Sn measurement.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Range: *sn\_snr* > 0.0

---

Name: *snr*  
Table: **Amplitude, Apma, Arrival, Complexity, Detection**  
Description: Signal-to-noise ratio. This is an estimate of the ratio of the amplitude of the signal to amplitude of the noise immediately preceding it. For **apma**, this value is based on the maximum 3-component amplitudes (see *amps*). This column is the average signal-to-noise ratio for the frequency bands that contributed to the final polarization estimates.  
Format: float(24) External: f10.2  
NA Value: -1.0  
Range: *snr* > 0.0

---

Name: *snr\_high\_band*  
Table: **EvscHydro**  
Description: Hydroacoustic signal-to-noise ratio in the high-frequency band (32–64 Hz) from table **Amplitude** for a given *orid/sta* pair.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Range: *snr\_high\_band* > 0.0

---

Name: *snthrsh*  
Table: **Siteaux**  
Description: Nominal signal-to-noise ratio.  
Format: float(24) External: f5.2  
NA Value: -1.0  
Range:  $snthrsh > 1.0$

---

Name: *spike*  
Table: **Qcstats**  
Description: Amount of data in the detection processing interval masked due to spikes.  
Format: float(53) External: f17.5  
NA Value: -999.0  
Units: seconds  
Range:  $spike \geq 0.0$

---

Name: *splitev*  
Table: **Ex\_an**  
Description: Indicates whether or not the analyst event solution contains arrivals that were previously associated with two or more expert system events.  
Format: varchar2(4) External: a4  
NA Value: - (hyphen)  
Range:  $splitev \in \{y, n\}$

---

## ▼ S/H/I Column Descriptions

---

Name: *sroid*  
Table: **Detection**  
Description: Uniquely identifies a set of parameters used in the signal processing.  
Format: number(8) External: i8  
NA Value: -1  
Range: *sroid* > 0

---

Name: *src*  
Table: **Mig\_rules**  
Description: Source database for migration.  
Format: varchar2(10) External: a10  
NA Value: NOT ALLOWED  
Range: any string up to 10 characters that is a valid name of a database server

---

Name: *src\_dpnt\_corr*  
Table: **Event\_control (In\_event\_control)**  
Description: Identification of whether or not, and what type of, source-dependent corrections were applied to the location.  
  
0 = No source-dependent corrections applied to the event location.  
1 = Test-site travel-time corrections applied to the event location.  
2 = Source-Region Station-Timing (SRST) corrections applied to the event location.  
3 = Regional level source-specific station corrections (SSSC) applied to the event location. SRST correction is not applied, even if it exists.  
4 = Local level SSSCs applied to the location. SRST correction is not applied, even if it exists.  
Format: number(2) External: i2  
NA Value: 0  
Range: *src\_dpnt\_corr* ∈ {0, 1, 2, 3, 4}

---

Name: *src\_tbl*  
Table: **Mig\_rules**  
Description: Source table for database migration.  
Format: varchar2(30) External: a30  
NA Value: NOT ALLOWED  
Range: any string up to 30 characters that is a valid table name

---

Name: *srn*  
Table: **Origin (Originref, Origin\_temp\_ga), Sregion**  
Description: Seismic region number, as given in [Fli74] (see *grn*, *grname*, and *sname*).  
Format: number(8) External: i8  
NA Value: -1  
NOT ALLOWED for **sregion**  
Range: *srn* > 0

---

Name: *sname*  
Table: **Sregion**  
Description: Seismic region name. This column is the common name of a seismic region, as given in [Fli74]. Names may have changed due to changing political circumstances (see *srn* and *grname*).  
Format: varchar2(40) External: a40  
NA Value: NOT ALLOWED  
Range: any upper-case string up to 40 characters

## ▼ S/H/I Column Descriptions

Name:	<i>sta</i>	
Table:	Affiliation (Stanet), Alphasite, Arrival, Assoc (Assoc_temp_ga), Attencoef, Beamaux, Ceppks, Chan_groups, Complexity, Detection, Dlfile, Evsc_hydro, EvscRegional, Exception_chanmap, Fileproduct (Fs_stageproduct), Fkdisc, Forbeamaux, Fsave, Fsdisc, Fwfile, Fwgap, Outage, Parrival, Participation, Producttypesta, Qcstats, Request, Sensor, Site, Site_address, Siteaux, Sitechan, Sitepoll, Sip, Stamag, Stassoc, Thirdmom, Timefreq, Wfconv, Wfdisc (Wfproto)	
Description:	Station code. This column value is the code name of a seismic, hydro-acoustic, or infrasonic observatory and identifies a geographic location recorded in the <code>site</code> table. Generally only three to five characters are used.	
Format:	varchar2(6)	External: a6
NA Value:	NOT ALLOWED	- (hyphen) for <code>assoc</code> , <code>chan_groups</code> , <code>dlfile</code> , <code>fileproduct</code> , <code>fkdisc</code> , <code>fsdisc</code> , <code>qcstats</code> , <code>stassoc</code> , <code>thirdmom</code>
Range:	any upper-case string up to six characters	

Name:	<i>staname</i>	
Table:	<b>Site</b>	
Description:	Station name/description. This column value is the full name of the station whose codename is in <i>sta</i> . As an example, one record in the <b>site</b> table connects <i>sta</i> = ANMO to <i>staname</i> = ALBUQUERQUE, NEW MEXICO (SRO).	
Format:	varchar2(50)	External: a50
NA Value:	– (hyphen)	
Range:	any upper-case string up to 50 characters	

---

Name: *staper*  
 Table: **Siteaux**  
 Description: Standard period at which noise estimates are made.  
 Format: float(24) External: f5.2  
 NA Value: -1.0  
 Units: seconds  
 Range: *staper* > 0.0

---

Name: *start\_time*  
 Table: **Amplitude, Request**  
 Description: Epoch start time of the data interval. Epochal time is given as seconds since hour 0 January 1, 1970.  
 Format: float(53) External: f17.5  
 NA Value: NOT ALLOWED  
 Units: seconds  
 Range: any valid epoch time

---

Name: *stassid*  
 Table: **Arrival, Stassoc**  
 Description: Station association identification. The wavetrain from a single event may be made up of a number of arrivals. A unique *stassid* joins those arrivals believed to have come from a common event as measured at a single station. *Stassid* is also the key to the **stassoc** table, which contains additional signal measurements not contained within the **arrival** table, such as station magnitude estimates and computed signal characteristics.  
 Format: number(8) External: i8  
 NA Value: -1  
 NOT ALLOWED for **stassoc**  
 Range: *stassid* > 0

**▼ S/H/I Column Descriptions**

---

Name: *stat\_prov*  
Table: **Site\_address**  
Description: State or province of a country.  
Format: varchar2(40) External: a40  
NA Value: – (hyphen)  
Range: any string up to 40 characters

---

Name: *state*  
Table: **Ga\_tag, Interval, Rebdone\_dataday\_flag, Request**  
Description: Processing state. The processing state of the interval within the automated processing system.  
Format: varchar2(16) External: a16  
varchar2(12) for **rebdone\_dataday\_flag**  
varchar2(20) for **ga\_tag**  
NA Value: – (hyphen)  
NOT ALLOWED for **ga\_tag**  
Range: a set of strings defined at each installation for each automated processing system,  
  
*ga\_tag* ∈ {aa\_processed, analyst\_reviewed, assoc\_first,  
driver\_restricted, locked\_association,  
probdet\_restricted, requested, wc\_restricted}

---

Name: *state\_count*  
Table: **Msgaux**  
Description: Number of failures of the message system to process a request.  
Format: number(4) External: i4  
NA Value: NOT ALLOWED  
Range: *state\_count* ≥ 0

---

Name: *statecount*  
 Table: **Request**  
 Description: Count of failures. When *state* = **failed**, the *statecount* column records the number of failures to acquire this data.  
 Format: number(8) External: i8  
 NA Value: NOT ALLOWED  
 Range: *statecount* ≥ 0

---

Name: *status*  
 Table: **Dataready**, **Datauser**, **Ftpfailed**, **Msgdatatype**, **Msgdest**, **Msgdisc**, **Outage**, **Problem**, **Prodtrack**, **Subs**, **Subsuser**  
 Description: Status of message (**msgdisc**), response message (**msgdest**), or problem (**problem**).  
 Format: varchar2(32) External: a6  
 varchar2(8) for **dataready**, **ftpfailed**  
 varchar2(6) for **subs**  
 varchar2(24) for **datauser**, **subsuser**  
 varchar2(12) for **prodtrack**  
 varchar2(33) for **problem**  
 NA Value: – (hyphen)  
 NOT ALLOWED for **datauser**  
 Range: any string up to the character limit  
*status* ∈ {DONE, FAILED} for **msgdatatype**  
*status* ∈ {ACTIVE, INACTIVE} for **datauser**

---

Name: *statype*  
 Table: **Allow\_resid**, **Site**, **Weights**  
 Description: Station type. This character string specifies the station type. Recommended entries are **ss** (single station) or **ar** (array).  
 Format: varchar2(4) External: a4  
 NA Value: – (hyphen)  
 Range: *statype* ∈ {ss, ar}

**▼ S/H/I Column Descriptions**

---

Name: *stav*  
Table: **Detection**  
Description: Short-term average used to describe the amplitude of a signal. The amplitude is averaged over a small time interval, typically 1–2 seconds. This time window is defined in *Sigpro* processing.  
Format: float(24) External: f11.5  
NA Value: -1.0  
Units: nanometers  
Range: *stav* > 0 . 0

---

Name: *stdconstval*  
Table: **Qcstats**  
Description: Standard deviation of data in masked constant segments.  
Format: float(53) External: f17.5  
NA Value: -999 . 0  
Units: same as waveform data  
Range: *stdconstval* ≥ 0 . 0

---

Name: *stime*  
Table: **Origerr (Origerr\_temp\_ga)**  
Description: Origin time error.  
Format: float(24) external: f8.2  
NA Value: -1.0  
Units: seconds  
Range: *stime* ≥ 0 . 0

---

Name: *stime*  
 Table: **Apma, Msgdest**  
 Description: In **apma**, this column is the epoch time at which S-type polarization columns are estimated. The value is the center of the time window with the maximum 3-component amplitude. In **msgdest**, this column is the time at which the corresponding message was sent.  
 Format: float(53) External: f17.5  
 NA Value: 9999999999.999  
 Units: seconds  
 Range: any valid epoch time

---

Name: *stmcor*  
 Table: **Siteaux**  
 Description: S-wave arrival time correction.  
 Format: float(24) External: f6.3  
 NA Value: -999.0  
 Units: seconds  
 Range: *stmcor* > -999.0

---

Name: *strike*  
 Table: **Evsc\_prod, Origerr (Origerr\_temp\_ga)**  
 Description: Strike of major axis of error ellipse. This column is the strike of the semi-major axis of the location error ellipse, measured in degrees clockwise from the North (see *smajax*).  
 Format: float(24) External: f6.2  
 NA Value: -1.0  
 Units: degrees  
 Range: 0.0 ≤ *strike* ≤ 360.0

**▼ S/H/I Column Descriptions**

---

Name: *strip*  
Table: **Wfconv**  
Description: Flag showing whether or not the data are stripped of headers (y/n).  
Format: varchar2(1) External: a1  
NA Value: – (hyphen)  
Range: *strip* ∈ {n, y}

---

Name: *stype*  
Table: **Arrival**  
Description: Signal type. This single-character flag indicates the event or signal type.  
The following definitions hold:

l = local event  
r = regional event  
t = teleseismic event  
m = mixed or multiple event  
g = glitch (for example, non-seismic detection)  
e = calibration activity obfuscated the data

l, r, and t are supplied by the reporting station or as an output of post-detection processing. g and c come from analyst comment or from status bits from GDSN and RSTN data.

Format: varchar2(1) External: a1  
NA Value: – (hyphen)  
Range: *stype* ∈ {l, r, t, m, g, c}

---

Name: *sub\_status*  
Table: **Msgaux**  
Description: Cause of failure.  
Format: varchar2(24) External: a24  
NA Value: NOT ALLOWED  
Range: any string up to 24 characters

---

Name: *subject*  
Table: **Msgdisc**  
Description: Subject header from an email message.  
Format: varchar2(64) External: a64  
NA Value: – (hyphen)  
Range: any string up to 64 characters

---

Name: *sublocname*  
Table: **Location**  
Description: Sub-location name.  
Format: varchar2(25) External: a25  
NA Value: – (hyphen)  
Range: any valid string up to 25 characters

---

Name: *subsid*  
Table: **Subs**  
Description: Subscription identifier.  
Format: number(8) External: i8  
NA Value: –1  
Range: *subsid* > 0

---

Name: *subsname*  
Table: **Subs**  
Description: Subscription name, which is defined by subscriber.  
Format: varchar2(24) External: a24  
NA Value: – (hyphen)  
Range: any string up to 24 characters

▼ **S/H/I Column Descriptions**

---

Name: *subtype*  
 Table: **Msgdisc**  
 Description: Specification of whether or not the request includes waveforms. In the future, this column may contain indications of other message subtypes.  
 Format: varchar2(2) External: a2  
 NA Value: – (hyphen)  
 Range: *subtype* ∈ {V, R, L}

---

Name: *supressempty*  
 Table: **Productcriteria**  
 Description: Flag (if no) indicating that empty AutoDRM subscription messages should be sent when no data are available.  
 Format: char(2) External: a2  
 NA Value: – (hyphen)  
 Range: *supressempty* ∈ {yes, no}

---

Name: *svar*  
 Table: **Spvar**  
 Description: Variance of the detrended log spectrum between *fmin* and *fmax*. The spectrum is measured in nm-sec.  
 Format: float(24) External: f12.6  
 NA Value: NOT ALLOWED  
 Range: any floating point value

---

Name: *sweight*  
 Table: **Weights**  
 Description: Slowness weight.  
 Format: float(24) External: f5.2  
 NA Value: 0 . 0  
 Range: *sweight* ≥ 0 . 0

Name:	sxx, syy, szz, stt, sxy, sxz, syz, stx, sty, stz	
Table:	<b>Origerr (Origerr_temp_ga)</b>	
Description:	Elements of the covariance matrix for the location identified by <i>orid</i> . The covariance matrix is symmetric (and positive definite) so that <i>sxy</i> = <i>syx</i> , and so on, ( <i>x</i> , <i>y</i> , <i>z</i> , <i>t</i> ) refer to latitude, longitude, depth, and origin time, respectively. These columns (together with <i>sdobs</i> , <i>ndef</i> , and <i>dtype</i> ) provide the information necessary to construct the K-dimensional (K = 2, 3, 4) confidence ellipse or ellipsoids at any confidence limit desired.	
Format:	float(24)	External: f15.4
NA Value:	-1.0	
Units:	sxx, syy, szz, sxy, sxz, syz - kilometers squared (km <sup>2</sup> ) stt - seconds squared (sec <sup>2</sup> ) stx, sty, stz - kilometers per second (km/sec)	
Range:	sxx, syy, szz, stt > 0.0	

Name: *table\_name*  
Table: **Arch\_data\_type**  
Description: Name of table encapsulating the data type.  
Format: varchar2(32) External: a32  
NA Value: – (hyphen)  
Range: any IDC database table name up to 32 characters

Name:	<i>tablename</i>
Table:	<b>Dataready</b>
Description:	Database table name containing data ready to be distributed by the <i>Subscription Subsystem</i> .
Format:	varchar2(24)
External:	a24
NA Value:	NOT ALLOWED
Range:	any string up to 24 characters that is a valid table name

## ▼ S/H/I Column Descriptions

Name: *tagid*  
 Table: **Dataready, Wftag**  
 Description: Tagname value. This column contains the value of a foreign key identified in *tagname*. For example, if *tagname* is *arid*, then **wftag** may be joined to **Arrival** where *arrival.arid = wftag.tagid*. If *tagname* is *orid*, then **wftag** and **Origin (Originref, Origin\_temp\_ga)** may be joined where *origin.orid = wftag.tagid*.  
 Format: number(8) External: i10  
           number(10) for **dataready**  
 NA Value: NOT ALLOWED  
 Range: *tagid* > 0

Name: *tagid2*  
 Table: **Dataready**  
 Description: Secondary tag value used by the *Subscription Subsystem* for data types that require more than one identifier (for example, time range for origin).  
 Format: number(10) External: i10  
 NA Value: -1  
 Range: *tagid2* > 0

Name: *tagname*  
 Table: **Dataready, Wftag**  
 Description: Tagname type. This column value is the name of the foreign key whose value is in *tagid*.  
 Format: varchar2(8) External: a12  
           varchar2(12) for **dataready**  
 NA Value: NOT ALLOWED  
 Range: *tagname* ∈ {*arid*, *evid*, *orid*, *stassid*, *msgid*} for **wftag**;  
       any for **dataready**

---

Name: *taper*  
 Table: **Fsrecipe**  
 Description: Type of taper used to smooth input data to Fourier spectrum. If cosine is specified, the *taperstart* and *taperend* values are used to determine the length of the taper.  
 Format: varchar2(8) External: a8  
 NA Value: – (hyphen)  
 Range: *taper* ∈ {hanning, hamming, cosine, bartlet, blackman}

---

Name: *taperend*  
 Table: **Fsrecipe**  
 Description: Length of the ending cosine taper used in smoothing data for Fourier spectra. The value is in percentage of the data window.  
 Format: number(8) External: i3  
 NA Value: 0  
 Range:  $1 < \text{taperend} < 50$

---

Name: *taperstart*  
 Table: **Fsrecipe**  
 Description: Length of the starting cosine taper used in smoothing data for Fourier spectra. The value is in percentage of the data window.  
 Format: number(8) External: i3  
 NA Value: 0  
 Range:  $1 < \text{taperstart} < 50$

**▼ S/H/I Column Descriptions**

---

Name: *task\_num*  
Table: **Mig\_rules**  
Description: Order of this migration task.  
Format: number External: i4  
NA Value: NOT ALLOWED  
Range: *task\_num*  $\geq 1$

---

Name: *tdepth*  
Table: **Location**  
Description: Tunnel depth. This column gives the depth (positive down) of tunnels or other subsites in the **location** table relative to the value of *elev*.  
Format: float(24) External: f9.4  
NA Value: -999.0  
Units: kilometers  
Range: *tdepth*  $\geq 0.0$

---

Name: *termination\_time*  
Table: **Hydro\_features**  
Description: Estimated termination time of signal.  
Format: float(53) External: f17.5  
NA Value: -9999999999.999  
Units: seconds  
Range: any valid epoch time

---

Name: *testsite*  
Table: **Expl0**  
Description: Test site region.  
Format: varchar2(15) External: a15  
NA Value: – (hyphen)  
Range: any string up to 15 characters

---

Name: *thatdb*  
Table: **Xtag**  
Description: Database account for the records specified by *thatname* and *thatid*.  
Format: varchar2(32) External: a32  
NA Value: – (hyphen)  
Range: any character string up to 32 characters that is a valid account name

---

Name: *thatid*  
Table: **Xtag**  
Description: Identifier for *thatname*.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *thatid* > 0

---

Name: *thatname*  
Table: **Xtag**  
Description: Key for *thatid*.  
Format: varchar2(8) External: a8  
NA Value: NOT ALLOWED  
Range: *thatname* ∈ {arid, orid, wfid ...}

**▼ S/H/I Column Descriptions**

---

Name: *thisdb*  
Table: **Xtag**  
Description: Database account for the records specified by *thisname* and *thisid*.  
Format: varchar2(32) External: a32  
NA Value: – (hyphen)  
Range: any character string up to 32 characters that is a valid account name

---

Name: *thisid*  
Table: **Xtag**  
Description: Identifier for *thisname*.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *thisid* > 0

---

Name: *thisname*  
Table: **Xtag**  
Description: Key for *thisid*.  
Format: varchar2(8) External: a8  
NA Value: NOT ALLOWED  
Range: *thisname* ∈ {arid, orid, wfid ...}

---

Name:	<i>time</i>
Table:	<b>Alphasite, Arrival, Beamaux, Datadays, Detection, Dlfile, Fileproduct (Fs_stageproduct), Fkdisc, Fsdisc, Fwgap, Interval, Origin (Originref, Origin_temp_ga), Outage, Parrival, Problem, Problemlog, Qcstats, Sensor, Siteaux, Stassoc, Timestamp, Wfdisc (Wfproto)</b>
Description:	Epoch time, given as seconds since midnight, January 1, 1970, and stored in a double-precision floating number. <i>time</i> refers to the table in which it is found; for example, in <b>arrival</b> it is the arrival time, in <b>origin</b> it is the origin time, in <b>wfdisc</b> it is the start time of data, and in <b>siteaux</b> it is the start time for which measurements are valid. Where the date of historical events is known, <i>time</i> is set to the start time of that date. Where the date of contemporary arrival measurements is known but no time is given, then <i>time</i> is set to the NA Value. The double-precision floating point number allows 15 decimal digits. At one millisecond accuracy, this is a range of $3 \times 10^4$ years. Where the date is unknown, or prior to February 10, 1653, <i>time</i> is set to the NA Value.
Format:	float(53) External: f17.5 number (17, 5) for <b>problem</b> , <b>problemlog</b>
NA Value:	-9999999999.999
Units:	seconds
Range:	any valid epoch time

---

Name:	<i>time_spread</i>
Table:	<b>Hydro_features</b>
Description:	Root-mean-square time spread of the estimated signal energy between <i>onset_time</i> and <i>termination_time</i> .
Format:	float(24) External: f9.4
NA Value:	-1.0
Units:	seconds
Range:	<i>timespread &gt; 0.0</i>

**▼ S/H/I Column Descriptions**

---

Name: *timedef*  
Table: **Assoc (Assoc\_temp\_ga)**  
Description: Time-defining code. This one-character flag indicates whether or not the time of a phase was used to constrain the event location. This column is defining (*timedef* = d) or nondefining (*timedef* = n).  
Format: varchar2(1) External: a1  
NA Value: – (hyphen)  
Range: *timedef* ∈ {n, d}

---

Name: *timelastsend*  
Table: **Productcriteria**  
Description: Last epoch time that the product was delivered.  
Format: float(54) External: f17.5  
NA Value: –9999999999.999  
Units: seconds  
Range: any valid epoch time

---

Name: *timenextsend*  
Table: **Productcriteria**  
Description: Next epoch time that product will be delivered.  
Format: float(54) External: f17.5  
NA Value: –9999999999.999  
Units: seconds  
Range: any valid epoch time

---

Name: *timeres*

Table: **Allow\_resid, Assoc (Assoc\_temp\_ga)**

Description: Time residual. This column is a travel-time residual measured in seconds. The residual is found by taking the observed arrival time (saved in the **Arrival** table) of a seismic phase and subtracting the expected arrival time. The expected arrival time is calculated by a formula based on an earth velocity model (column *vmodel*), an event location and origin time (saved in table **Origin (Originref, Origin\_temp\_ga)**), the distance to the station (column *dist* in table **assoc**), and the particular seismic phase (column *phase* in table **assoc**).

Format: float(24) External: f8.3

NA Value: -999.0

Units: seconds

Range: *timeres* > -999.0

---

Name: *tlen*

Table: **Ampdescript, Dlfile, Fkdisc, Fsdisc**

Description: Time window length. *Tlen* should be NA in **ampdescript** if a velocity window is used.

Format: float(24) External: f10.3

NA Value: -1.0

Units: seconds

Range: *tlen* > 0.0

---

Name: *tmf*

Table: **Thirdmom**

Description: Third moment of frequency.

Format: float(24) External: f7.2

NA Value: NOT ALLOWED

Range: *tmf* ≥ 0.0

## ▼ S/H/I Column Descriptions

---

Name: *tmfpct*  
Table: **Thirdmom**  
Description: Percentage of signal spectrum amplitudes greater than their corresponding noise spectrum amplitudes in the frequency range [*tmf-fmin*, *tmf-fmax*]. *tmf-fmin* and *tmf-fmax* are par-file parameters.  
Format: float(24) External: f7.2  
NA Value: NOT ALLOWED  
Range:  $0 \leq \text{tmfpct} \leq 100$

---

Name: *toff*  
Table: **Ampdescript**  
Description: Offset from theoretical or observed arrival time. This column is used to define the start time of the amplitude measurement window and may be used in conjunction with either *tlen* to define a static window or with *gvlo* to define a dynamic window. If *toff* is set to -999, then *gvhi* must be used to define the start time of the window.  
Format: float(24) External: f6.2  
NA Value: -999.0  
Units: seconds  
Range:  $\text{toff} \geq 0.0$

---

Name: *total\_energy*  
Table: **Hydro\_features, Infra\_features**  
Description: Total energy in the signal between *onset\_time* and *termination\_time* for **hydro\_features** and between *eng\_time* and *eng\_dur* for **infra\_features**.  
Format: float(24) External: f9.4  
NA Value: -1.0  
Units: dB re  $\mu\text{Pa}$   
(microbars)<sup>2</sup> for **infra\_features**  
Range:  $\text{total\_energy} > 0.0$

---

Name: *total\_time*  
Table: **Hydro\_features**  
Description: Total time that the estimated signal pressure squared exceeds *noise\_onset\_thresh* between *onset\_time* and *termination\_time*.  
Format: float(53) External: f17.5  
NA Value: -1.0  
Units: seconds  
Range: *total\_time* > 0.0

---

Name: *transmeth*  
Table: **Msgdest**  
Description: Method by which the response is to be delivered to the requestor.  
Format: varchar2(16) External: a16  
NA Value: - (hyphen)  
Range: any string up to 16 characters

---

Name: *tshift*  
Table: **Sensor**  
Description: Correction for clock errors. This column is designed to accommodate discrepancies between actual time and the numerical time written by data recording systems. Actual time is the sum of the reported time plus *tshift*.  
Format: float(24) External: f6.2  
NA Value: NOT ALLOWED  
Units: seconds  
Range: any valid real number

## ▼ S/H/I Column Descriptions

---

Name: *tsta*  
Table: **Ev\_summary (Ex\_summary, An\_summary)**  
Description: Number of teleseismic observations for an event. A teleseismic observation is currently defined as having a station-event distance  $\geq 2000$  km.  
Format: number(8) External: i8  
NA Value: -1  
Range: *tsta*  $\geq 0$

---

Name: *tweight*  
Table: **Weights**  
Description: Time weight.  
Format: float(24) External: f5.2  
NA Value: 0.0  
Range: *tweight*  $\geq 0.0$

---

Name: *typeid*  
Table: **Fileproduct (Fs\_stageproduct), Fpdescription**  
Description: Identifier for the product type description.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *typeid*  $> 0$

---

Name: *uncertainty*  
Table: **Netmag, Stamag**  
Description: Magnitude uncertainty. This column value is the standard deviation of the accompanying magnitude measurement.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Range: *uncertainty*  $> 0.0$

---

Name: *units*  
 Table: **Amplitude**  
 Description: Units of amplitude measure.  
 Format: varchar2(15) External: a15  
 NA Value: – (hyphen)  
 Range:  $units \in \{\text{nm}\}$

---

Name: *userid*  
 Table: **Datauser, Msgdisc, Subs, Subsuser**  
 Description: User identifier for *Subscription* and *Message Subsystems*.  
 Format: number(8) External: i8  
 NA Value: –1  
     NOT ALLOWED for **datauser**  
 Range:  $userid > 0$

---

Name: *username*  
 Table: **Datauser, Ftplogin, Subsuser**  
 Description: User name for FTP access or for *Subscription Subsystem*.  
 Format: varchar2(16) External: a24  
     varchar2(24) for **datauser, subuser**  
 NA Value: – (hyphen)  
     NOT ALLOWED for **datauser**  
 Range: any string up to (16, 24) characters that is a valid user name

---

Name: *vamp*  
 Table: **Amp3c**  
 Description: Vertical amplitude.  
 Format: float(24) External: f11.2  
 NA Value: –999.0  
 Range:  $vamp \geq 0.0$

**▼ S/H/I Column Descriptions**

---

Name: *vang*  
Table: **Sitechan**  
Description: Vertical orientation of seismometer. This column measures the angle between the sensitive axis of a seismometer and the outward-pointing vertical direction. For a vertically oriented seismometer, *vang* = 0. For a horizontally oriented seismometer, *vang* = 90 (see *hang*).  
Format: float(24) External: f6.1  
NA Value: NOT ALLOWED  
Units: degrees  
Range: 0 . 0 ≤ *vang* ≤ 90 . 0

---

Name: *verifstatus*  
Table: **Msgdisc**  
Description: Status of verification.  
Format: varchar2(4) External: a4  
NA Value: – (hyphen)  
Range: ASCII character string

---

Name: *version*  
Table: **Fileproduct (Fs\_stageproduct)**  
Description: Version of the software that generated the file product.  
Format: float(53) External: f6.2  
NA Value: –1  
Range: *version* > 0 . 0

---

Name: *vmodel*  
 Table: **Assoc (Assoc\_temp\_ga), Parrival**  
 Description: Velocity model. This character string identifies the velocity model of the earth used to compute the travel times of seismic phases. A velocity model is required for event location (if phase is defining) or for computing travel-time residuals.  
 Format: varchar2(15) External: a15  
 NA Value: – (hyphen)  
 Range: any string up to 15 characters

---

Name: *vsnr*  
 Table: **Amp3c**  
 Description: Vertical signal-to-noise ratio. Ratio of *vamp* to root-mean-square amplitude of a vertically-oriented component filtered in a frequency band centered at *cfreq* Hz.  
 Format: float(24) External: f10.2  
 NA Value: –999.0  
 Range: *vsnr* ≥ 0.0

---

Name: *waterdepth*  
 Table: **Expl0**  
 Description: Depth of static water table level. Depth from surface zero to the piezometric surface in pre-Tertiary rocks, or to the composite piezometric surface.  
 Format: float(24) External: f7.4  
 NA Value: –1  
 Units: kilometers  
 Range: *watdep* ≥ 0.0

**▼ S/H/I Column Descriptions**

---

Name: *wfid*  
Table: **Fsdisc, Wfaux, Wfdisc (Wfproto), Wftag**  
Description: Unique waveform identifier for a **wfdisc** record.  
Format: number(8) External: i8  
NA Value: -1  
Range: *wfid* > 0

---

Name: *wgt*  
Table: **Assoc (Assoc\_temp\_ga)**  
Description: Location weight. This column gives the final weight assigned to the allied arrival by the location program. This column is used primarily for location programs that adaptively weight data by their residuals.  
Format: float(24) External: f6.3  
NA Value: -1.0  
Range: 0.0 ≤ *wgt* < 1.0

---

Name: *winlen*  
Table: **Fsrecipe**  
Description: Number of points per window.  
Format: number(8) External: i8  
NA Value: NOT ALLOWED  
Range: *winlen* > 0

---

Name: *xavpct*  
Table: **Timefreq**  
Description: Average ratio of bad points to total of the cross-correlation trace.  
Format: float(24) External: f7.2  
NA Value: NOT ALLOWED  
Range: 0 ≤ *xavpct* ≤ 1

---

Name: *xcoef*  
 Table: **Attencoef**  
 Description: Constant coefficient in the distance correction formula.  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Range: any valid floating point value

---

Name: *xcor*  
 Table: **Timefreq**  
 Description: For **timefreq**, *xcor* is the zero lag cross-correlation between the three pairs of time-frequency matrices.  
 Format: float(24) External: f9.4  
 NA Value: NOT ALLOWED  
 Range:  $0 \leq xcor \leq 1$

---

Name: *ycoef*  
 Table: **Attencoef**  
 Description: Geometrical spreading coefficient in the distance correction formula.  
 Format: float(24) External: f7.2  
 NA Value: -999.0  
 Range: any valid floating point value

---

Name: *yield*  
 Table: **Explo**  
 Description: Explosion yield.  
 Format: float(24) External: f9.3  
 NA Value: -1  
 Units: kT  
 Range:  $yield > 0.0$

---

**▼ S/H/I Column Descriptions**

---

Name: *yldmax*  
Table: **Expl0**  
Description: Estimated upper limit of explosion yield.  
Format: float(24) External: f9.3  
NA Value: -1  
Units: kT  
Range: *yldmax* > 0 . 0

---

Name: *zavcep*  
Table: **Timefreq**  
Description: Average maximum value in the two-dimensional cepstrum of the vertical component traces.  
Format: float(24) External: f7.2  
NA Value: NOT ALLOWED  
Range: *zavcep* ≥ 0

---

Name: *zavcor*  
Table: **Timefreq**  
Description: Average autocorrelation along the time axis across all frequencies excluding randomized points of the vertical component traces.  
Format: float(24) External: f7.2  
NA Value: NOT ALLOWED  
Range: *zavcor* ≥ 0

---

Name: ***zavpct***  
Table: **Timefreq**  
Description: Average ratio of bad points to total of the vertical component traces.  
Format: float(24) External: f7.2  
NA Value: NOT ALLOWED  
Range:  $0 \leq zavpct \leq 1$

---

Name: ***zcoef***  
Table: **Attencoeff**  
Description: Attenuation coefficient in the distance correction formula.  
Format: float(24) External: f7.2  
NA Value: -999.0  
Range: any valid floating point value

---

Name: ***zrcr\_delfreq***  
Table: **Infra\_features**  
Description: The estimated standard deviation in *zrcr\_freq*.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Units: Hertz  
Range:  $zcr\_delfreq > 0.0$

**▼ S/H/I Column Descriptions**

---

Name: *zcrc\_freq*  
Table: **Infra\_features**  
Description: Frequency of the arrival as estimated from the zero-crossing rate of the traditional beam-formed waveform data in the time interval defined by *coinc\_time* and *coinc\_dur*.  
Format: float(24) External: f7.2  
NA Value: -1.0  
Units: Hertz  
Range: *zcrc\_freq* > 0.0

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# Glossary

Selected definitions in this glossary include prefixes of either "R: " or "S/H/I: ." Definitions applicable only to the radionuclide technology include the "R: " prefix; definitions applicable only to seismic, hydroacoustic, or infrasonic technologies include the "S/H/I: " prefix.

## Symbols

### 2-D

Two-dimensional.

### 3-C

Three-component.

### $\beta$

R: Beta particle.

### $\gamma$

R: Gamma particle.

### $\mu\text{Bq}$

R: MicroBecquerels.

### $\mu\text{Pa}$

MicroPascals.

## A

### abundance

R: Fraction of a decay event that results in the radiation(s) or interest (for example, a gamma line at a specific energy or a beta-gamma coincidence pair). Intensity is sometimes used to mean abundance.

### activation products

R: Nuclides produced from the absorption of a neutron by a nucleus.

### activity

R: Decay rate of a radionuclide; usually expressed in Becquerels (disintegrations per second), Bq.

### amp

Amplitude.

### amplitude

S/H/I: Zero-to-peak height of a waveform in nanometers.

### array

S/H/I: Collection of sensors distributed over a finite area (usually in a cross or concentric pattern) and referred to as a single station.

### arrival

S/H/I: Signal that has been associated to an event. First, the Global Association (GA) software associates the signal to an

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event. Later during interactive processing, many arrivals are confirmed and improved by visual inspection.

**ASCII**

American Standard Code for Information Interchange. Standard, unformatted 256-character set of letters and numbers.

**attribute**

(1) A database column. S/H/I; (2) Characteristic of an item; specifically, a quantitative measure of a S/H/I arrival such as azimuth, slowness, period, and amplitude.

**authentication signature**

Series of bytes that are unique to a set of data and that are used to verify the authenticity of the data.

**B****background**

R: Contribution to a spectrum from naturally occurring radionuclides as well as interactions between radiation and materials in the vicinity of the detector.

**baseline**

R: Contribution to a spectrum from the partial energy deposition of a gamma-ray in a detector.

**beta-gamma coincidence event**

R: Nuclear decay that produces both a gamma ray and a beta particle within a very short time scale. May also refer to

other photon-electron coincidence events such as an X-ray with a conversion electron.

**beta particle**

R: Electron that is produced from a nuclear decay. May also refer to other electron radiations, for example, a conversion electron.

**blank subtraction**

R: Process of removing counts from a sample spectrum or a region of interest within a sample spectrum originating from the air filter.

**BLANKPHD**

R: Blank Pulse Height Data; ASCII data message containing the pulse height data of an unexposed air filter, as well as other information, in an IDC-approved format.

**C****CALIBPHD**

R: Calibration Pulse Height Data; ASCII data message containing the pulse height data of a certified standard source, as well as other information, in an IDC-approved format. The data in a CALIBPHD are used to determine the ECR, EER, and RER.

**calibration coefficients**

R: Numbers that define the energy, resolution, and efficiency equations.

**centroid**

R: Energy (in keV) or channel number at the center of a fitted peak.

**channel**

R: Energy window (in keV) representing a differential increment of pulse height.  
S/H/I: Component of motion or distinct stream of data.

**cm**

Centimeter.

**coherent**

S/H/I: Quality of having a fixed phase relationship; as signals from a waveform detected on numerous seismic or infrasonic array station elements.

**concentration**

R: Activity per unit volume of air.

**cosmogenic nuclides**

R: Nuclides produced by the interaction of cosmic-rays with matter.

**counts**

R: Number of pulses observed within a spectrum channel.

S/H/I: Units of digital waveform data.

**critical level/limit**

R: Minimum net counts that must be contained in an ROI for nuclide identification ( $L_c$ ).

**CSCI**

Computer Software Configuration Item.

**CTBT**

Comprehensive Nuclear Test-Ban Treaty (the Treaty).

**D****DB**

Database.

**dB**

Decibel.

**defining**

S/H/I: Arrival attribute, such as arrival time, azimuth, or slowness, which is used in calculating the event's location or magnitude.

**defining phase**

S/H/I: Associated phase for which features are used in the estimation of the location and origin time of an S/H/I event.

**DETBKPHD**

R: Detector Background Pulse Height Data; ASCII data message containing the pulse height data from a background count, as well as other information, in an IDC-approved format.

**detection limit**

R: The smallest amount of activity that can be reliably detected and quantified in a spectrum. This quantity is used to determine the MDC.

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### E

#### **ECR**

R: Energy versus Channel Regression; an equation providing the initial detector-specific relationship between channel number and energy. The equation contains calibration coefficients and is estimated from a transmitted calibration dataset.

#### **ECRU**

R: Energy versus Channel Regression Update; an equation providing the final detector-specific relationship between channel number and energy.

#### **EER**

R: Efficiency versus Energy Regression; an equation providing the detector-specific relationship between efficiency and energy.

#### **energy**

R: Usually refers to the measured kinetic energy of radiation quanta deposited in a detector. The unit most appropriate for such measurements is keV.  
S/H/I: Occurrence that displays characteristics indicative of a possible nuclear weapons test.

#### **epoch time**

Number of seconds after January 1, 1970 00:00:00.0.

### event

R: Occurrence that displays characteristics indicative of a possible nuclear weapons test.  
S/H/I: Unique source of seismic, hydroacoustic, or infrasonic wave energy that is limited in both time and space.

### **EWMA**

R: Exponentially Weighted Moving Average; statistical filter that recursively generates a prediction interval using past observations weighted in an exponential fashion. This filter is useful for determining anomalous radionuclide concentrations for categorization purposes.

### F

#### **FFT**

Fast Fourier Transform.

#### **fission (P)**

R: Particulates created in a fission event.

#### **fission (G)**

R: Gases created in a fission event.

#### **f-k**

S/H/I: Frequency versus wavenumber (k) analysis that maps phase power from an array as a function of azimuth and slowness.

#### **FPID**

R: Fission Product Identification.

**FTP**

File Transfer Protocol; protocol for transferring files between computers.

**FULL SPHD**

R: Full Sample Pulse Height Data; ASCII data message containing the pulse height data of a sample acquired for a complete collection interval, as well as other information, in an IDC-approved format.

**FWHM**

R: Full Width at Half-Maximum; metric of detector resolution and equivalent to the width of a photopeak (in keV) taken at the peak height equal to half the maximum peak counts.

**G****g**

Gram.

**GA**

S/H/I: Global Association application.  
GA associates S/H/I phases to events.

**gamma**

R: Gamma-ray.

**gamma ray**

R: Photon that is produced from a nuclear transition; may also imply other photon radiations, for example, an X-ray.

**GARDS**

R: Global Atmospheric Radionuclide Detection System; the network of radionuclide monitoring stations that meet CTBT requirements and transmit radionuclide data to the IDC with coordination by the IDC.

**GASBKPHD**

R: Gas Background Pulse Height Data. Data type sent by noble gas monitoring systems that observe a memory effect during sample acquisition due to atoms from the previous sample adsorbed onto the walls of the gas cell. The counts from the memory effect must be subtracted from the sample counts for accurate activity quantification.

**GMT**

Greenwich Mean Time.

**GSETT-3**

S/H/I: Group of Scientific Experts Third Technical Test.

**H****hydroacoustic**

S/H/I: Pertaining to sound in the ocean.

**I****IDC**

International Data Centre.

**IEEE**

Institute for Electrical and Electronic Engineers.

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**IIR**

Infinite Impulse Response (filters also referred to as recursive filters).

**IMS**

International Monitoring System.

**infrasonic**

S/H/I: Pertaining to low-frequency (sub-audible) sound in the atmosphere.

**Internet**

World-wide network of computers linked by means of the IP protocol.

**IP**

Internet protocol.

**K****KB**

Kilobyte. 1,024 bytes.

**keV**

R: Kiloelectron Volts; a metric of kinetic energy.

**keyline**

R: Photon with the highest detection probability.

**L** **$L_c$** 

R: Critical level.

**local**

S/H/I: (1) (distance) Source to seismometer separations of a few degrees or less. (2) (event) Recorded at distances where the first P and S waves from shallow events have traveled along direct paths within the crust.

**M****m**

(1) Meter(s). (2) Megabyte(s); 1,024 kilobytes. (3) Month(s). (4) Minute(s).

 **$m_b$** 

S/H/I: Magnitude of a seismic body wave.

**mbar**

Millibar.

**mbmle**

S/H/I: Magnitude of an event based on maximum likelihood estimation using seismic body waves.

 **$mBq$** 

R: MilliBecquerel.

**MDA**

R: Minimum Detectable Activity.

**MDC**

R: Minimum Detectable Concentration.

**minimum detectable concentration**

R: Activity concentration of a given radionuclide that is indistinguishable from the measurement process noise level.

**M<sub>L</sub>**

S/H/I: Magnitude based on waves measured near the source.

**mm**

Millimeter.

**monitoring system**

See IMS and RMS.

**M<sub>s</sub>**

S/H/I: Magnitude of seismic surface waves.

**msmle**

S/H/I: Magnitude of an event based on maximum likelihood estimation using surface waves.

**multiplet**

R: Spectral region of interest comprised of more than one photopeak.

**N****NA**

Not Applicable.

**NDC**

National Data Center.

**NID**

Nuclide Identification.

**nm**

Nanometer.

**nondefining**

S/H/I: Arrival attribute, such as arrival time, azimuth, or slowness, which is associated, but not used in calculating the event's location or magnitude.

**nondefining phase**

S/H/I: Associated phase for which features are not used in the estimating the location and origin time of an S/H/I event.

**NSE**

Noise Spectrum Equalization.

**nuclide**

R: One of many combinations of nucleons that may comprise an atomic nucleus. Because all nuclides of interest with respect to CTBT compliance verification are radioactive, this term is often used to refer specifically to radionuclides.

**O****Operations Manuals**

Treaty-specified, formal documents that describe how to provide data, receive IDC products, access the IDC database, and evaluate the performance of the IDC.

**ORACLE**

Vendor of PIDC and IDC database management system.

**origin**

S/H/I: Hypothesized time and location of a seismic, hydroacoustic, or infrasonic event. Any event may have many ori-

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gins. Characteristics such as magnitudes and error estimates may be associated with an origin.

## P

### parameter (par) file

ASCII file containing values for parameters of a program. Par files are used to replace command line arguments. The files are formatted as a list of [*token* = *value*] strings.

### peak

R: Statistically significant increase in counts above a spectrum baseline at an energy associated with a gamma line of a particular radionuclide or other phenomenon.

### PHD

R: Pulse Height Data; a format for spectral data messages. Possible PHD data message types include BLANKPHD, CALIBPHD, DETBKPHD, GASBKPHD, QCPHD, and SAMPLEPHD.

### PIDC

Prototype International Data Centre.

### polarization

S/H/I: Form of three-component analysis used to derive azimuth and slowness information from non-array stations.

### PREL SPHD

R: Preliminary Sample Pulse Height Data; ASCII data message containing the pulse height data of a sample acquired for less than a complete collection interval, as well as other information.

### primary seismic

S/H/I: IMS seismic station(s) or data that is (are) part of the detection network.

### PS

R: Peak Search.

## Q

### QC

Quality Control.

### QCPHD

R: Quality Control Pulse Height Data; ASCII data message containing the pulse height data of a certified source as well as other information. Information in the QCPHD, along with other data, is used to check a detector's state of health.

### quefrency

S/H/I: Time-delay axis with units of seconds for a cepstrum.

## R

### R

R: Radionuclide.

### radioactivity

R: See activity.

**radionuclide**

R: Nuclide that has an unstable nucleus, that is, a radioactive nuclide.

**REB**

S/H/I: Reviewed Event Bulletin; the bulletin formed of all S/H/I events that have passed analyst inspection and quality assurance review.

**region of interest**

R: Region of a radionuclide spectrum or histogram that corresponds to a particular radionuclide.

**regional**

S/H/I: (1) (distance) Source to seismometer separations between a few degrees and 20 degrees. (2) (event) Recorded at distances where the first P and S waves from shallow events have traveled along paths through the uppermost mantle.

**RER**

R: Resolution (versus) Energy Regression; an equation providing the initial detector-specific relationship between resolution and energy. This equation contains calibration coefficients and is interpolated from a transmitted calibration spectrum.

**residual**

S/H/I: Difference in time, azimuth, or slowness between a calculated attribute and its corresponding theoretical value.

**RLR**

R: Radionuclide Lab Report; report containing sample analysis results from a certified radionuclide laboratory.

**RMS**

R: Radionuclide Monitoring System; the part of the IMS that monitors the atmosphere for radionuclides.

**RNPS**

R: Radionuclide Network Product Summary; daily report containing a summary of the Radionuclide Network for a three-day period, including the data received, their products, and any relevant nuclides.

**ROI**

R: Region of interest.

**RRR**

R: Reviewed Radionuclide Report. Electronic file containing the final results of the interactive review of the automated radionuclide processing. It contains sections on sample information, measurement categorization, measured radionuclide quantities, MDCs, radionuclide identification, analyst editing, processing parameters, data quality flags, event screening flags, calibration equations, and field of regard.

**S****SAIC**

Science Applications International Corporation.

**sample**

Any physical entity counted on a detector.

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#### SAMPLEPHD

R: Sample Pulse Height Data; ASCII data message containing pulse height data acquired by counting a gas or particulate sample with a detector system.

#### S/H/I

S/H/I: Seismic, hydroacoustic, and infrasonic.

#### SID

R: Sample ID; unique alphanumeric string assigned to a sample during the automated processing for identification and accounting purposes.

#### singlet

R: Spectrum photopeak consisting of counts from one mono-energetic gamma-ray; photopeak containing counts from multiple photons, but fit as if it is comprised of counts from only one because contributions from the individual radiations cannot be separated, as in a multiplet.

#### S LSD

S/H/I: Standard List of Signal Detections.

#### SOH

State of Health; indicator of a system's operability.

#### spectrum

R: Plot of the differential number of pulses (in counts) per differential pulse height (in channels or keV).

S/H/I: Plot of the energy contained in waveforms as a function of frequency.

#### SPHD

R: Sample Pulse Height Data; ASCII data message type containing the pulse height data of a sample, as well as other information. The two types of SPHDs are full and preliminary. See FULL SPHD and PREL SPHD.

#### SQL

Structured Query Language; a language for manipulating data in a relational database.

#### SSREB

R: Standard Screened Radionuclide Event Bulletin; bulletin generated by the IDC when fission or activation products are detected at a radionuclide station above normal limits. A SSREB contains information on the possible event, source location, fission products, activation products detected, any isotopic ratios calculated, and any certified laboratory results. New event information can be added to the SSREB as it arrives, therefore, multiple revisions of an SSREB are possible.

#### STA/LTA

S/H/I: Short-term average/long-term average ratio.

#### Sum/Natural

R: Artificial entries in the nuclide library that enable the automated processing to identify commonly observed sum peaks in a spectrum.

## T

**taxonomy**

Systematic arrangement; classification.

**TCP/IP**

Transmission Control Protocol/Internet Protocol.

**teleseismic**

S/H/I: (1) (distance) Source to seismometer separations of 20 degrees or more. (2) (event) Recorded at distances where the first P and S waves from shallow events have traveled paths through the mantle/core.

**time series**

S/H/I: Time ordered sequence of data samples. Typically a waveform or derived from waveforms, such as a beam.

**Treaty**

Comprehensive Nuclear Test-Ban Treaty (CTBT).

**Type I Error**

R: Spectral region of interest falsely identified as a peak by the automated processing.

**Type II Error**

R: Peak undetected by the automated processing.



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